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INCLUDING

AN EPITOME OF CURRENT MEDICAL LITERATURE.

EDITED FOR THE ASSOCIATION BY

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REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[Report to the British Medical Journal.]

I.

We have commissioned Mr. Sidney Rowland to investigate the application of Roentgen's discovery and to study practically its applications. He is employed now in doing so, and with some interesting results. Any of our members who may have suitable cases of interest which they desire to have investigated by the new photography are invited to communicate with us. Mr. Rowland writes to us as follows:

Not much further light has been thrown on the nature of the new radiation since the discovery was announced. The interest in the subject has not diminished, and numerous communications have appeared; yet it is hard to find any matter of importance as to this very difficult problem. In England, Mr. Gifford, of Chard, has been working hard, and has produced many curious results, it is true, but none that are in any way explanatory of the new discovery. The chief difficulty in making rapid headway consists in the scarcity of suitable tubes, the whole of the English stock having been bought up almost on the first receipt of the intelligence from Germany, and of these but a small proportion have been found to be of any use. Fresh arrivals are daily coming in, and some are being made in Germany. As many of our readers are probably already trying the new method, a description of the actual appliances employed may be of use, together with some hints as to the choice of apparatus and good methods of working.

The Choice of a Coil and Transformer.

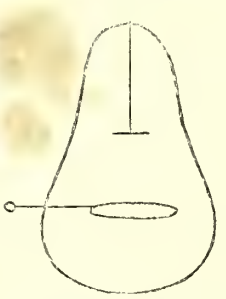
First, as to the coil. This must be a fairly large one, say 7-inch spark. It must be a really good instrument, made by a reliable maker; the cheaper French coils are of no use. It is important to have sufficient battery power, for want of this is the most frequent cause of failure in coil work. Dry cells are of no use at all, and bichromate batteries fall off so rapidly that they are unsuitable for the long exposures sometimes necessary. The best form of battery is undoubtedly Groves's or Bunsen's. A street supply from a company's mains, if available, can be used with the least trouble. In using it, however, care must be taken to transform it to a suitable pressure.

Although results undoubtedly can be obtained by the use of a coil alone, yet the best so far have been obtained by using a small Testa transformer. These transformers can now be obtained from the instrument maker of suitable size for coils from 2-inch spark and upwards. Their effect is to raise the frequency of alternation of the current to an exceedingly high pitch. The choice of the tube is the most important matter. Too much care cannot be devoted to this. The vacuum must be exeeedingly high; nothing else is of the slightest use. Before purchasing one it should be tried by the instrument maker, and the character of the discharge noticed. If the tube lights up with an apparently uniform whitish green glow, then the tube may be expected to give good results; if, however, the discharge is continuous from pole to pole the vacuum is a low one, and the tube useless for the purpose in view. The character of the glow as noticed by the eye can be taken as a fairly good criterion as to the possible performance of the tube. The glow should, I find, be of a whitish purplish colour, quite distinct from the green fluorescence of the glass. Great care must be taken of such a tube, and when in use it must be most carefully insulated, for a frequent cause of destruction of good tubes is the breaking through of the discharge to some neighbouring good conductor. The tubes must be suspended by silk threads from a glass support, and carefully cleaned on the outside.

Mr. Gifford's Results: their Explanation.

Mr. Gifford's work has already been alluded to. He has found, among other things, that it is possible to photograph through opaque bodies without a tube at all, using simply the brush discharge from one of the dischargers of a large coil. In this way he has produced images of coins quite distinctly. I have repeated these experiments, using, instead of a coil discharge, that from a Testa transformer, with the result that I have obtained not only the shadow of the coin on the plate, but a perfect picture of the engraving on the coin. Mr. Gifford argues from these experiments that Roentgen *x* rays are not of the nature of light, but rather of an electrical effect. But this argument fails, I think, in the light of the following experiment. In this case the penny was placed *behind* the plate, so as to avoid the possibility of any shadow effect, and with exactly the same result—namely, a faithful image of the impression of the coin. It is obvious, therefore, that we have here to do with an electrical contact effect, and not with Roentgen rays at all.

As to the best plates to employ, I have found the best results from isochromatics of high rapidity developed with pyro and soda. There is thus no insuperable difficulty in working the new process; it only needs care in details and the careful selection of the tube. The latest form is of this shape, one electrode being an aluminium plate and the other a ring. The plate should be the cathode.



With an apparatus of this description, which is not very bulky, and only requires care in working, it is quite possible for anyone to obtain negatives that will show all that has been shown up to the present. The accompanying hand (p. 363) was taken by me with such an apparatus with an exposure of twenty minutes.

Professor S. P. Thompson's conclusions up to the present are:

1. That success depends more on the degree of exhaustion (of the tube) than anything else. Only the highest exhaustion is of use.
2. Sharply defined shadows need as a source a small bulb.
3. The *x* rays do not emanate exclusively, as has been supposed, from the phosphorescent patches on the glass. On the contrary, he has cases of double shadows cast by one tube, where the stronger shadow was shown as by rays emanating straight from the cathode, while the weaker one was thrown as by rays emanating at the phosphorescent patch.
4. Professor Thompson finds diamond to be more opaque than black carbon.
5. In wood (pine) the dark resinous streaks are more transparent than the lighter coloured tissue.
6. A specimen of flies in amber shows no shadow of the flies.
7. There appears to be no difference in the degree of opacity of magnetised and non-magnetised iron.

Professor Thompson and Professor Lodge agree in regarding the rays as rather of the nature of sound waves than of light. But they differ as to the length, the one considering them as excessively short, the other (probably) as longer than the rays of visible light.

And these embody all that can be definitely stated at present. It is hoped that next week photographs of cases will be ready demonstrating the practical application of the new discovery.

Some of the earliest endeavours to apply Professor Roentgen's discovery not only to diagnosis but to treatment are reported from Vienna. Professor Mosetig was the first to utilise the new method. At the Medical Society he reported two cases in which operative procedures were carried out under the guidance of the exact knowledge of the anatomical conditions obtained by the new radiation. The accompanying illustrations

are reproductions of photographs of the cases which were taken by Roentgen's method in Professor Franz Exner's Physical Institute. The first case is one of deformity of the distal phalanx of the hallux, which appeared to be double. This diagnosis had already been made without the help of the new photography, but there was a difficulty in distinguishing which of the two bones was the normal one and which the supernumerary. As this could not be made out, Professor Mosetig would have had to resort to remove the whole of the double distal phalanx. The Roentgen photography showed, however, that only one of the two bones (the lateral one) articulated with the first phalanx, while the other was merely a supernumerary appendix, articulating with the normal distal phalanx by a sort of facette, distinctly to be seen in the photograph. Besides the great comfort it afforded to the patient to see with his own eyes the real condition of his abnormality before having a part of his body removed, the surgeon was enabled to spare the normal phalanx.

In the other case the situation of a revolver bullet could be exactly made out after every other method had failed. The bullet had imbedded itself into the fourth interosseous space of the right hand, and become tightly fixed to the fifth metacarpal bone. The photograph shows clearly the bullet and the slight deformity caused by it in the metacarpal bone. In this case also the surgeon's hand was guided by the photograph, and the bullet was easily removed. These photographs were taken by means of a very large Ruhm-Korff inductor, the exposure being two hours, for which time the patient's limb had to lie directly (and quietly) on the box with the sensitive plate. This seems a great drawback of the method, but good photographs have since been obtained after a much shorter exposure.

Professor Neusser was the first to attempt the application of the new discovery to medical diagnosis. He had photographs taken, outside the body, of gallstones and of a vesical calculus, the latter consisting of phosphates, which proved quite impenetrable to Roentgen's rays, while the cholesterine stones were not quite opaque. The photograph of the latter was taken through a layer of calf's liver 4 centimetres thick. The results were so promising that Professor Neusser intends soon to give the method a trial on the living patient.

Herr E. Haschell and Dr. O. Th. Lindenthal have made experiments in the Physico-Chemical Institute of Professor Franz Exner, of Vienna.[1] In the finger of a colleague, through which a pistol bullet had passed many years before, they were able to show the injured bone in which the loss of osseous tissue had been made good by callus. They also succeeded in photographing the bones of a child's arm, forearm, and foot, but they failed in their attempts to get pictures of the bones of the skull and trunk. On a dead hand, however, after injection, they were able to photograph the blood vessels. This seems to open up a new possible application of the method to the teaching of anatomy.

Professor Adolph and Dr. Lenz, of Elberfeld, seem to have been successful in a further modification, or rather extension, of the Roentgen photography. They announce that they are able to photograph the bones of thicker parts of the body than the hand—such, for instance, as the arm and wrist; and, further, that their method enables them to photograph not only the bones but the connective tissue.

In France experiments are being made in the laboratories by Professor Lannelongue and MM. Perrin, Mascart, and Oudin. M. Gariel, Professor of Physics in the Paris Medical Faculty, doubts whether the new photography can be so generally applied in medicine and surgery as at first sight it was supposed. He asks how this method can be applied to the greater number of the organs contained in the human body. In the thorax, for instance, the organs placed behind the sternum and those in front of the vertebral column would not by made clear. The same difficulty applies almost equally to photography of the stomach, liver, kidney, and heart. M. Gariel asserts that in order to obtain information by this method of photography the organs under examination must be photographed by diffusion not by transparency. Perhaps this step in advance will be realised, but at present there are no indications which permit the hypothesis; even were it so an "image" must be produced and not a "shadow" on the sensitive plate. There must be discovered reflecting and refractive methods of acting on the rays in the same way as concave mirrors and lenses act on ordinary light rays. Research has shown that these rays are not submitted to refraction nor to regular reflection in the conditions under which they have been studied. It would perhaps be rash to say that these effects will never be manifested under other conditions, but Professor Gariel considers it to be barely probable. He acknowledges the importance of the results of the application of the Roentgen method made by M. Lannelongue, already noticed in the British Medical Journal, but he points out that they in no way invalidate the conclusions summarised above. The *cliché* examined by the Academicians present when M. Lannelongue made his communication showed that there are white patches in the midst of the shadow thrown by the bone, proving, as M. Lannelongue had previously affirmed, that the destruction of the osseous tissue operates from the centre to the periphery, not from the periphery to the centre. All the three cases photographed were simple. It is precisely in these that the method of photography by the new radiation will be of service.

From Montpelier comes also testimony to the possibilities of the new photography. Three lecturers in that medical school have succeeded in photographing a 5-franc piece which was placed inside a purse, and had four folds of leather between it and the apparatus. The form of the money came out distinctly on the photographic plate, as did also the shape and texture of the purse.

[1] *Wien. klin. Wochenschrift*, January 23rd.

THE NEW KIND OF RADIATION.

Sir,—It is known that cultures of the bacillus of tubercle are sterilised by direct sunlight. So far as I am aware, no differential experiments have been made to ascertain whether this result is produced by sunlight in its totality, or, if not, by what part of the spectrum. It is certainly possible that the violet or ultra-violet rays may be the active agent. This suggests the desirability of determining by direct experiment whether the new radiant has or has not a sterilising effect upon tubercle bacillus.

It is superfluous to point out that should this prove to be the case, it would place in our hands that which has been for some time our highest aspiration—namely, a means of sterilising the tubercle bacillus *in situ* within the body. Even the lungs, though partially protected by impermeable ribs, would not be entirely withdrawn from this influence.—I am, etc.,

Birmingham, Jan. 28th. Willoughby Wade, F.R.C.P.

*** This letter, received last week, was, in the pressure on our columns, inadvertently omitted from the last number of the Journal.

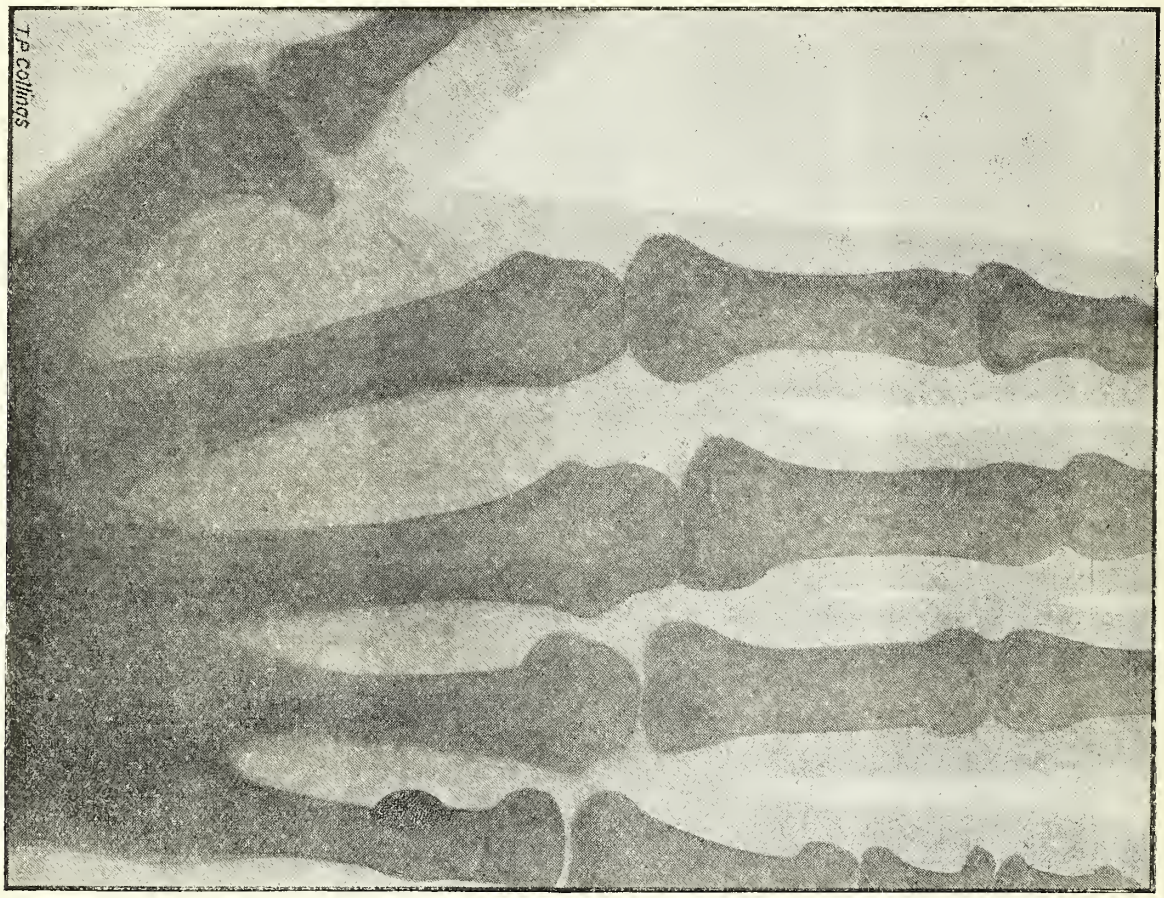
A bacteriological department has been established at the Central London Throat, Nose, and Ear Hospital, and Mr. St. George Reid has been appointed to take charge of it for twelve months.

A meeting of the South-Western Division of the Medico-Psychological Association will be held at Barnwood House, Gloucester, on Tuesday, April 14th. After the election of new members the report of the Committee on Criminal Responsibility will be considered, to be followed by a discussion on the Nursing Staff in Asylums.

Cholera and Typhoid Fever in India.—The next annual report of the Sanitary Commissioner with the Government of India will, the *Pioneer Mail* states, contain an interesting summary of all the evidence regarding the comma bacillus and its relation to cholera. The question of epidemic typhoid will also be dealt with in this report, which is to be issued during the current month.

Royal Maternity Charity.—The annual meeting of the governors of this charity was held on February 4th at the Society's house, 31, Finsbury Square, under the presidency of Dr. Robert Barnes. The 140th annual report, which was read by Mr. J. W. Long, the secretary, stated that last year the charity nurses ministered to 4,445 poor married women in their hour of trial. That was the largest number of patients relieved by the institution in any one year since 1825, and it was very satisfactory to state that out of the large number only four women died.

Roentgen photography of the normal human hand.



Roentgen photograph of hand showing bullet wound.

Roentgen photograph of foot showing supernumerary phalanx.

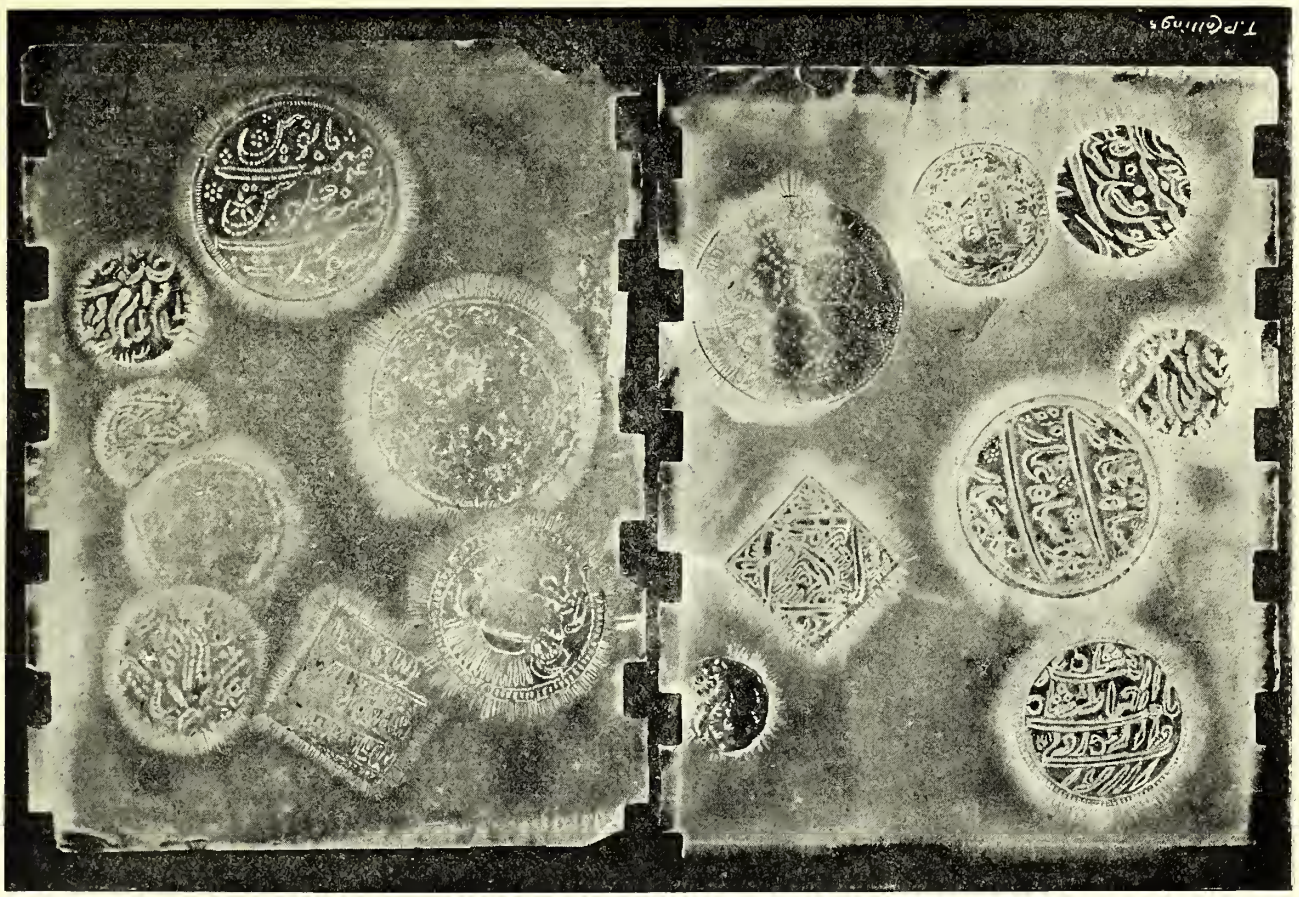


Fig. *a*. Fig. *b*.

Inductograms of various coins, showing the possibility of photography without a Crookes's tube the effect being due to a contact effect. In the second figure the coins were placed *behind* the plate.—Sydney Rowland (photo.)

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

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II.

Mr. Sydney Rowland, B.A., reports that the past week has not been fruitful of so much advance as could have been wished, and beyond the strength that experiment and personal experience of the new method has given, the developments have been rather of the nature of defining the difficulties and causes of failure than of removing them. Owing to the loss of the best tube it has not been possible to apply the method clinically, as was hoped last week, except in the case to be alluded to. New tubes are, however, to hand, and progress is again being made. For the benefit of other workers it may be of use to give at length the chief difficulties that I have found, and the best means of surmounting them.

First and foremost among the causes of failure must be placed the deficiencies in the tube itself. It does not seem possible at present to define with any accuracy what kind of tube is most suitable; this can only be found by actual experiment. In the tube itself there are several causes of possible defect.

First as to the degree of the vacuum necessary. Certainly this must be "high," but on the other hand not too high. If too "low," the discharge simply breaks from pole to pole in a continuous stream; if too high, on the other hand, it is not possible to excite it without using very powerful currents such as are not always available. It seems, therefore, to be a question of hitting the balance between the degree of exhaustion, the strength of the current, and the frequency of interruption; at least this is my experience. The tube with which the hand published last week was taken would certainly not be called a very high vacuum tube, and yet it gave, when the current was adjusted to it, and only then, very excellent results. The tube figured last week has failed in my hands to give any results at all, and yet I hear that other workers using the same tube have been able to produce good results, possibly because in their case the current used was just suitable to the degree of exhaustion.

To sum up, then, with regard to the tube: It is little more than a matter of chance at present whether any given tube will produce results or not, having a tube the current must be adjusted to it, and even then it may not give results. New light on these points is most urgently needed before the new method can become an accepted means of clinical diagnosis, and can be shed only by accurate and laborious physical experiments. It is only to be hoped that the many workers now engaged in investigating Professor Roentgen's rays will soon tell us something on these points.

With regard to my statement last week that Mr. Gifford's results without using a Crookes's tube were not due to Roentgen's rays, the following letter has been received:

Sir,—In the British Medical Journal of February 8th, p. 361, I note that Mr. Sydney Rowland, in his report on the "new photography," refers to the results I obtained without using a Crookes's tube. Will you permit me to remove a misapprehension? He says he has produced "not only," as I did, "the shadow of the coin on the plate, but a perfect picture of the engraving on the coin." I have not done this; the discs I used had numbers stamped on them, but neither

Photograph of a human foot by Mr. Sydney Rowland, showing the deformity of the terminal phalanges owing to the use of tight boots. Owing to the plate being accidentally broken, the metatarsal bones are not visible.

these nor any other surface markings were reproduced. From what I have referred to, he argues that I have represented the *x* rays as being a direct electrical effect of this kind. That is not so. My ideas, which are quite as indefinite as those of others at the present stage of the inquiry, were and are that these are electrical wave phenomena. My meaning will be clear to those at all versed in the doctrines and teaching of Hertz.

The effects Mr. Rowland refers to are nothing new. These induction phenomena were present in my experiments both with and without the tube in the form of spark and brush discharge between the discs of a most interesting form, and are a distinctly different class of phenomena from the shadow effect. But their appearance in experiments made with a Crookes's tube, as well as without, seemed to point to a possible identity of the shadow effect with and without.—I am, etc.,

Chard, W.C., Feb. 9th. J. WILLIAM GIFFORD.

I may be perhaps allowed to say that Mr. Gifford does not apparently know what he means, and what he now writes in no way invalidates the comment. My point is the fact that in my experiments it was immaterial whether the coin was placed in front of or behind the photographic plate, and that therefore such effects could not be the result of shadows thrown by the coin on the plate. And as this is the essence of the new photography, it was argued that the effect to which he refers was not due to *x* rays, but of the nature of a direct electrical effect, the same or similar to the well-known inductograms. Figs. *a* and *b* show the results I obtained and alluded to last week. Fig. *a* was taken with the coin in front of the plate, and Fig. *b* with the coin placed *behind* the plate.

My photograph of the foot, which is reproduced above, shows very clearly the nature of the bone changes and atrophy produced by the wearing of tight boots, and the accompanying history given by the patient may be of use in the explanation and treatment of similar symptoms when again met with.

The owner of this foot says that when a child she was obliged to wear boots which were made to measure, and were consequently supposed to fit. She remembers well the torture consequent on new boots, and the pain particularly produced in the little and fourth toes. In fact, later on, when a girl, the constant aching pain in both the fourth toes became so great that boots were discarded for shoes, and walking became a penance. She says she frequently expressed a wish to have the fourth toes amputated. She had no comfort in walking till she wore broad, square-toed French boots, and since then she has not suffered. Therefore the toes are very deficient in prehensile power, and she has frequent falls.

From Professor Roentgen have been received copies of the photographs taken by him which are now so familiar. They include one of a fracture of the forearm with much displacement. The lesion shows quite clearly on the photograph, but it has not been possible to reproduce it. Professor Roentgen has also sent a signed photograph of himself, which it is hoped to reproduce shortly.

Mr. Robert Jones, of Liverpool, and Dr. Dawson Turner are both kind enough to send specimens of their work, which, however, as yet shows nothing new; so already the new method is being taken up by medical men in actual practice.

Professor Oliver Lodge also sends a negative showing the position of a bullet in a wrist, but too late for publication this week.

In regard to the newspaper reports describing the alleged production of Roentgen photographs by means of the light emitted from paraffin lamps and bunsen burners it is not possible to speak at present. Such results seem very improbable, and until more is known about them and actual specimens of the work done come to hand we must rest content with the reports.

THE NEW KIND OF RADIATION.

Sir,—Should it be proved, as Sir Willoughby Wade has suggested, that the bactericidal rays of sunlight are identical with Roentgen's *x* rays, or even if they can be proved to be similar in their penetrating power without being actually of the same kind, the fact will open up a wide field in therapeutics. For not only only is the tubercle bacillus destroyed by exposure to sunlight, but a number of other bacilli and pathogenic organisms of various kinds are similarly affected. It is interesting to note that as long ago as 1888[1] Dr. R. L. Bowles recognised the interesting and important fact that in Alpine regions a peculiar photo-chemical effect was due to certain rays reflected from large areas on masses of snow, and that these rays penetrated to a certain depth below the surface of the skin, causing in summer severe sunburn, and in winter a charaeteristic brownish staining. Further, he has demonstrated the fact that these same rays act upon the wood of which the châlets are built, penetrating the wood to a considerable depth, and that these rays acted primarily on the resin of the wood; and it is somewhat remarkable that Professor S. P. Thompson has arrived at a similar conclusion as to the effect of Roentgen's rays upon resinous wood. I was influenced by the views thus expressed by Dr. Bowles when at the discussion on the Latency of Disease Germs at the Royal Medical and Chirurgical Society on December 10th, 1895. I suggested as a possible explanation of the therapeutical influenee of sunlight in phthisis that the bactericidal rays had a power of penetrating deeply into the tissues of the body. I made this suggestion before Roentgen's discoveries and his "bone-shadow" pictures had become known to anyone in this country. I think with Sir Willoughby Wade that it is most important to ascertain whether there is any relation, and if any, what kind of relation, between the Roentgen *x* rays and the baetericidal rays already assumed to be part and pareel of the sun's light.—I am, etc.,

W. Spencer Watson, M.B., F.R.C.S.

Henrietta Street, W., Feb. 11th.

Re ROENTGEN RAYS AND TISSUE TRANSPARENCY.

Sir,—It may interest you to know that, in conjunction with my colleague, Professor Kuenen, I have been testing the relative transparency to Roentgen rays (generated for a Crookes's tube) of various tissues from the same animal (cat), placed in slices 3 mm. thick over a photographic plate, separated by light proof black paper and gutta-percha tissue.

The tissues used were bone, eartilage, fat, liver, muscle, kidney, eerebrum, and cerebellum. Of these, bone was the most, and cartilage the least, opaque. Fat was more transparent than any of those remaining on the list. In the kidney the cortex was far more transparent than the medulla (the outlines of the bases of the Malpighian pyramids being very distinct in the region of the boundary zone), while in the brain, in both cerebrum and eerebellum, the white matter was more transparent than the grey.

Transparency, then, is not related to water content of tissue, a fact evident enough from the transparency of the nails in the hand and foot photographs.

An experiment with a slice of cancerous human liver, kindly supplied by Dr. Stalker, showed no difference in transparency of the cancerous and normal parts.—I am, etc.,

E. Waymouth Reid,

Professor of Physiology in University College, Dundee.

G. H.—Glass is only relatively opaque to the *x* rays; for this reason the latest form of tube is made with very thin ends. Some maintain that he *x* rays are generated at the glass surface by impact of other rays.

[1] *Sunburn on the Alps*, by Dr. R. L. Bowles, 1888.

THE ROENTGEN RAYS.

By G. M. KEEVIL, M.R.C.S., L.R.C.P., L.D.S.Eng.

In the eourse of some experiments on the Roentgen rays I have hit upon a series of such extraordinary effects that I hasten to place them on record without further loss of time, believing them to be of the utmost importance. The most simple of apparatus was used, consisting only of a 50-candle power incandescent lamp, with the filament *broken*, the two ends of the broken filament being about half-an-inch from each other.

This broken lamp was substituted for a perfect one in the fittings of the latter, that is to say, it swung from the ceiling by the usual wire. Under this broken lamp was placed a dark slide containing a Cadett rapid plate, this being at a distance of about 3 inches from the lamp, and the film being directed upwards.

On this slide were placed two keys and a penny piece. The current was now switched on (I should observe that these experiments were done in a photographie dark room, no other influence eould affect the plate, and the broken lamp did not show the slightest signs of any blush or glow whatever)—and as I did not dare to hope for any result from such a faint eurrent and such imperfect apparatus, the arrangement was left *in situ* overnight, and when the plate was removed and developed, it had been subjeeted to the rays about twelve hours.

The photograph (No. 1) shows the print obtained from this

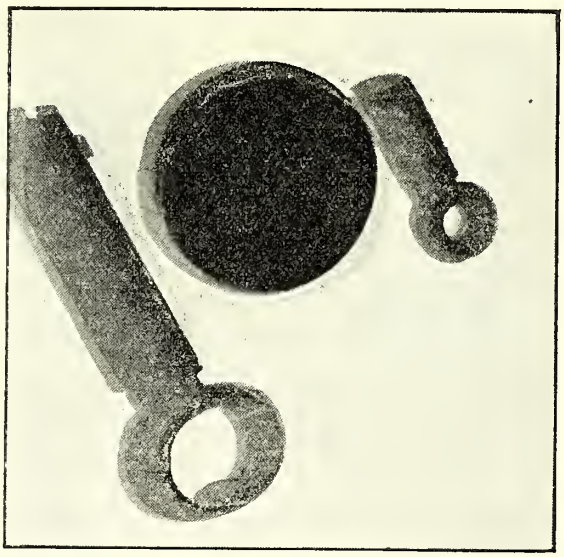


Fig. 1.—Exposure of 12 hours under broken incandeseent lamp, distance about 3 inches.

negative thus produced, and in it I beg to call attention to the remarkable shadow shown on the left hand of the objects, the outline of the other side being perfectly sharp. We are completely ignorant as to the cause or meaning of this extraordinary appearance; it is certain that no extraneous light found admittance, and indeed sueh an effect could not be produced by ordinary light: it is equally certain that movement of the objects on the dark slide or of the lamp (what I will call the illuminating point) did not produce it, and for reasons which I will state when considering the Photograph No. 2.

Another point to which I wish to call attention is the absence of graduation in the shadow. Photograph No. 2 is of even a more extraordinary and interesting character than No. 1; exactly the same arrangement of apparatus was used, the objects being a half-crown, a shilling, a silver collar stud, a cameleon seal with two links at its upper edge, and a metal button placed face downwards and having a small metal eye on its now upper aspect. The silver collar stud was also standing upright on its large end.

I beg here to call particular attention to the position of

these articles in view of the astounding nature of the result. The current being now turned on, the slide was subjected to the influence for an hour and ten minutes, Mr. Friese Green, F.R.A.S., Dr. Bull, of Paris, and others being present. At the end of this time the plate was removed and developed, with the result that a negative was obtained from which Photograph No. 2 was printed. In this photograph the shadows are again produced, and in the same direction as before; but what is most striking of all is the impression of the collar stud and the metal button, both of which were standing upright on the slide. These articles have been developed on the plate as though the rays had fallen upon them at an angle of about 15 degrees with the horizontal plane, this being the point at which I was obliged to place my eye to view the articles—put in the same positions—in order to obtain the same apparent effect. The photograph also shows a faint shadow to the right of the rounded objects. This effect is apparently due to some of the rays affecting the plate in a vertical direction, whereas the majority of the rays, being very oblique, have passed under the edge of the rounded objects in question.

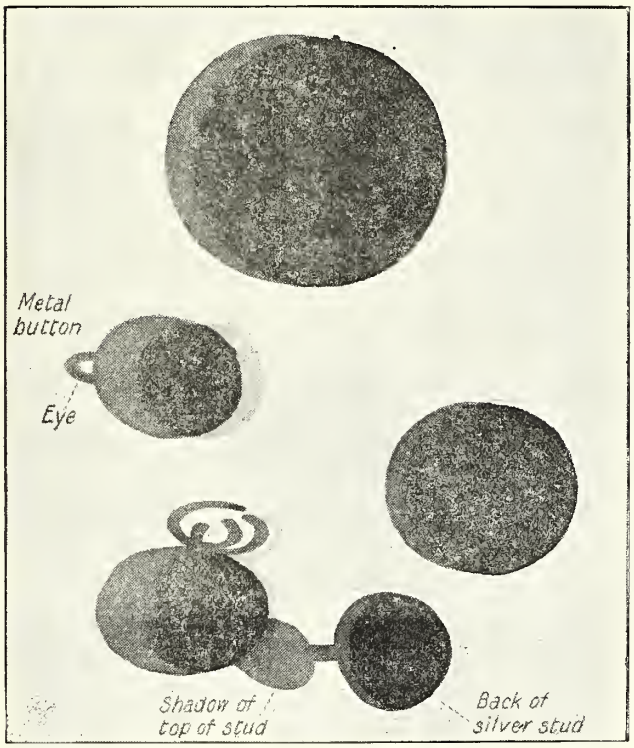


Fig. 2.—Exposure of 1 hour and 10 minutes under broken incandescent lamp distant 3 inches.

Neither I nor those with me at the time can venture to explain these astonishing results, but we are convinced that there has been no discoverable fallacy in the experiments.

For various reasons, I suggested that the axes of the shadows and of the magnetic meridian might be coincident, but on consulting the compass needle we thought that the coincidence was not perfect enough to account for the direction.

Outside the dark room, and at a distance of about six feet from the apparatus, was a photographer's electric light, consisting of a series of 50 candle-power lamps, twelve in number, but, as the circuit through this was complete, we are not of opinion that this accounts for the phenomenon, but if it is so, it is no less remarkable that this current should be capable of influencing the Roentgen rays than is the fact that these rays themselves are capable of producing the results here shown.

In conclusion I beg to point out that the broken lamp was hanging over the centre of the plate, and yet the rays must have affected the plate at an angle of about 15 degrees with the horizontal.

[The publication of this paper was unavoidably postponed last week owing to the difficulty of reproducing the photographs.]

THE BATTLE OF THE CLUBS.

LEICESTER.

WE are informed that an invitation has been issued to all the medical men resident in Leicester to attend a meeting on February 20th, to consider the relations existing between medical men on the one hand, and dispensaries, medical aid societies, and clubs on the other.

We are requested to call the attention of any medical man who may have been disposed to answer advertisements from the National Medical Aid Society, or the Liverpool Victoria Legal Society, for a medical officer for Leicester, to the fact that the medical profession there are seeking by united action to prevent the extension of this system of downward competition, which threatens to reduce the profession to the level of a trade, with medical officers as the paid servants of limited companies. The method on which some at least of these limited companies conduct their business seems to many to be little better than a colourable evasion of the Medical Acts, and, however this may be, it may positively be asserted that any man who permits himself to be made the stalking horse of these companies, not only places himself in a position of opposition to the best traditions of the medical profession, but sacrifices his own independence for the sake of an appointment of which the tenure is uncertain and the remuneration inadequate.

THE OXFORD BRANCH.

THE Oxford Branch of the British Medical Association was amongst the earliest bodies to take action in the matter of the abuse of clubs, and the extension of the operations of the medical aid companies. Two years ago the Branch adopted the following resolution:

That [in the opinion of this meeting medical men ought not to meet in consultation medical officers of medical aid associations, as defined] by the Committee of the General Medical Council.

It will be remembered that the committee referred to in this resolution recommended that the General Medical Council should record its opinion that a medical practitioner acted in a reprehensible manner if he held a medical aid appointment: (1) Where the duties are so onerous that he cannot do justice to the patients under his care. (2) If he consent to give certificates, where in his opinion they are not justifiable on medical grounds. (3) If he accept or retain employment by an association in which canvassing is used to attract members.

At a meeting of the Branch last October it was resolved to send a copy of the resolution of the Branch above quoted to every member of the Branch, with a request that he would answer "Yes" or "No" to the question whether he was in agreement with the resolution. A subcommittee was appointed, consisting of Drs. A. Winkfield, A. H. Boissier, J. W. Edwards, S. A. Hayman, with Dr. W. Collier, of Oxford, as Honorary Secretary. In reply, 70 members expressed their concurrence with the view expressed in the resolution, 5 dissented, 3 were doubtful, and from 10 members no answer was received. Further steps, we are informed, will now be taken in the hope of bringing about complete unanimity.

THE BRITISH MEDICAL AID SOCIETY.

A CORRESPONDENT sends us a circular of the above Society and a letter received from the agent inviting him to become its medical officer. The letter runs:

MY DEAR SIR,—I am organising the British Medical Aid Society in ——, and I should like to give you the first refusal to act as medical officer (most probably the only one). The terms are:

2s. 6d.	per member	(annual)
4s. 6d.	per 2 members	in family
6s. 0d.	per 3	,, ,,
7s. 6d.	per 4	,, ,,
9s. 0d.	per 5	,, ,,
10s. 6d.	per 6	,, ,,

Please let me hear from you.—Yours faithfully, etc., ——.

the medical profession would absolutely decline the club as a whole while willingly accepting single units at a reasonable payment, I cannot doubt that much good would speedily follow.

The subservience of the surgeon and the tyranny of the Club Committee would equally come to an end; more than this, it would be easy for the profession to decline attendance upon well-to-do or unsuitable members, and to insist upon reasonable, if quite moderate, rates of payment. This view I am delighted to see is accepted by one at least of the new friendly societies (*vide* British Medical Journal, February 8th, 1896, p. 367).

It must always happen that a very large section of the community finds itself, in the face of disabling illness, unable to make more than moderate payments for the skilled help urgently needed. Every variety of scale of payment seems to have been tried with more or less success in different localities, yet there may be room at least for a suggestion.

Some years ago the question was asked from quite a large number of men (having only in common the fact that their weekly earnings did not exceed 25s. per week) what payment they could afford to make to a doctor for his services for ordinary illness during one year? It is needless to add that their views and their phraseology differed as widely as the colour of their coats; but when the replies were committed to writing and carefully compared there was a singular unanimity in their conclusions. Briefly put it came to this: that one week's wages would form a reasonable return, and one, too, that they would accept without hesitation. It seems not unreasonable to suppose that the profession would do well to accept, with possible elasticity here and there, this as a fair basis for medical remuneration. It would press hardly upon no paying member of any friendly society compared with his unavoidable expenditure for daily needs; it would compare very favourably with the miserable pittances which are daily offered on the one side, and I fear I must add ungraciously accepted on the other.—I am, etc.,

Stamford, Feb. 11th. W. Newman.

Overpressure of Medical Officers.

Sir,—With regard to the account of The Battle of the Clubs in the British Medical Journal of January 25th, I should like to remark that, in my opinion, the resolutions approved of by the Dundee Branch of the British Medical Association, and referred to by you as very moderate, are far too moderate.

I maintain that 5s. ought to be the minimum fee accepted by any doctor for any adult club member per annum, inclusive of medicine, and that even this fee is, in the vast majority of cases, totally inadequate. If success in the battle of the clubs means 4s. 4d. per annum, inclusive of medicine, for an adult member, I say this contest is not worthy of the name of a battle, and that no Branch of the British Medical Association ought to be congratulated on gaining such a victory.

The weak point in connection with this so-called battle seems to me to be the want of unanimity amongst the combatants. Every Branch seems to be fighting on its own account, and what one Branch would no doubt regard as a great victory, another would probably think not worth fighting for. If a satisfactory scale of fees were drawn up by an admittedly influential body of medical men appointed, say, by the various Branches of the British Medical Association, then I think we should soon gain a victory which we might be proud of.

We have only ourselves to blame, I am convinced, for the disgraceful way in which we club doctors are sweated. I have a large club practice (the minimum adult fee being, I am glad to say, 5s.), but I cannot even make an honest attempt to do my work properly, and my own firm conviction is that very few club doctors do or can look after their patients as they ought to. No doubt they do their best, a large portion of their work being practically gratuitous, but I maintain that club practice, as it is generally seen in England, has a most demoralising effect upon the body and soul of the unfortunate "club doctor," who is at the beck and call of everyone who chooses to pay a penny a week for "attendance and medicine," and who in doing this has often the audacity to think he is paying the doctor well, and who feels quite aggrieved if he cannot have a few bottles of medicine in the year, whether he requires them or not. The result of a large club practice is of necessity carelessness in one's work. The work has to be done; it cannot be done properly, so one must do it in the best way possible. A certain number of bottles have to be filled in the morning; careful dispensing is absolutely impossible; therefore the bottles must be filled as quickly as possible with stock mixtures. A certain number of patients have to be seen; to think of studying or investigating each case is absurd; time does not admit of it. The visits are hurried over, the daily round being a race against time.

Such is, I think, a pretty accurate description of a club doctor's life in the country. Can anyone call this a noble life? Is it a life which any gentleman ought to lead? As house-physician and in my student days I took a great interest in studying and carefully watching disease as seen in hospital. I now loathe my professional work, and wish I had never spent so many years in preparing for a profession the rewards of which for many, and apparently only the more fortunate members, are 4s. 4d. a year inclusive of medicine.—I am, etc.,

B.A., M.D., B.Ch., B.A.O., and a Club Doctor.

January 27th.

Dundee.

The recent conference at Dundee is beginning to bear fruit. The *Dundee Courier* of February 7th reports that two clubs (A.O.F.), "Court Robin" and "Admiral Duncan," have come to a decision that members "should adopt the system of calling in their own doctors and establishing a central pharmacy."

Belgium.

The practitioners of Liége and Namur have followed the example of those of Brussels and Mons, and have "struck" against the vexations demands of the clubs.

Tu Quoque.

Dr. A. Kenward Matthews (Stoke Newington) writes: At the present time, when we are being called upon to make a stand against medical aid societies, on account of their poor pay, etc., it would not perhaps be out of place to look at the value medical men put upon the work of other medical men. I refer to the payment of qualified assistants. £120 a year outdoor, or £60 indoor, cannot be said to be a well-paid post; and if one is to be rated at this figure by a medical man, is it to be wondered that those outside the profession should not consider our services of very great value? It seems to me it is preferable to be the doctor to a large club, with the chance of private practice, than to do somebody's club and poor for the assistant's beggarly salary. By all means let us uphold the nobility and dignity of the profession, but should it not be upheld by the old-established and successful practitioners as well as by those who are beginners? If assistants were less often "sweated," the medical aid societies would not have such an easy task.

Difficulties of Young Practitioners.

"Junior," writing on the present crowded state of the profession, remarks that "in most places four-fifths of the artisan population are attended on the club system, and many of those in a higher position," and that "the club appointments are held by his elders. The consequence is that it is almost impossible for him to obtain patients, the alternative before him being either to retire from the field or to accept offers made to him to work at a lower rate than his neighbours." It must be confessed that there is some truth in this contention, and it ought not to be forgotten that a portion of the responsibility for the unprofessional practice of juniors lies at the door of their senior brethren, who have in certain cases not scrupled to take appointments at very low rates, and have thus injured the prospects of junior practitioners. He further says: "As long as the present club system continues, which allows patients who can pay fair fees to be attended for a paltry 5s. a year or less; and as long as one or two men receive inadequate remuneration for work which should yield support for another in addition, so long will younger men be compelled to accept terms which they know to be undignified." Every stand, therefore, made by the profession against the present low rate of club payments tends to remove a very obvious grievance of our younger brethren, and to diminish that lower residuum out of which clubs and medical aid societies obtain their tools to oppose us in enforcing our just claims.

At the last meeting of the Anatomical Society of Great and Ireland, which was held at St. Mary's Hospital, communications were made by Dr. Rolleston, Dr. Wardrop Griffith, Mr. E. M. Corner, Dr. J. H. Sequeira, and Dr. Barclay Smith. Mr. J. H. Targett showed specimens of hip bones from cases of congenital dislocation.

At the dinner to be held in May in aid of the funds of Guy's Hospital the Duke of Fife, the Earl of Durham, the Earl of Dudley, Lord Tweedmouth, Lord Wandsworth, Lord Hillingdon, Lord Aldenham, Hon. W. F. D. Smith, Sir Arthur Arnold, Sir David Baird, and Sir Horace Farquhar have signified their willingness to act as stewards in support of the Prince of Wales.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[REPORT TO THE BRITISH MEDICAL JOURNAL.]

BY SIDNEY ROWLAND, B.A.

III.

THE POSSIBILITY OF PHOTOGRAPHING DEEP STRUCTURES.

As many applications have been received for photographing the deep structures of the body for the purpose of locating tumours or foreign bodies, a few words may be said on the possibilities which the new process holds out for work of such nature. It must be understood that the permeability of the body tissues to the new rays is entirely a matter of relative and not of absolute transparency or opacity. Thus if the exposure is sufficiently prolonged it is possible to obtain a photograph which will not show even the bones, they having during the time of the increased exposure allowed sufficient of the *x* rays to pass through them to affect the plate in the region of their shadow, which thus appears as dark on development as the rest of the plate. That being so, it is theoretically possible to obtain a shadow photograph of any structure that is surrounded by tissues which are either more or less transparent to the *x* rays than in the structure itself. There is no good reason theoretically, therefore, why such subjects as stone in the bladder could not be photographed successfully, but the practical difficulties in the way of accomplishing such things are very great. Take the case, for example, of an impacted foreign body in the mediastinum. To attempt its photography the patient would have to lie down with the photograph plate tightly fixed to his back. The Crookes's tube would have to be suspended over the chest. Under these conditions the *x* rays from the tube would have to traverse the whole of the structures comprised within the thorax, together with the bony investment and skin. Such a procedure would involve a very long exposure, and although not impossible, is for all purposes at present impracticable. I have repeatedly tried to obtain skiagrams of the knee, but never with absolute success, although the results, so far, are encouraging, and I hope soon to be successful.

THE CRYPTOSCOPE.

The reported invention by Professor Salvioni of an instrument for enabling the eye to see objects which are covered by materials that were heretofore opaque is confirmed if later telegrams are to be believed. The instrument is said to consist of a cylinder of cardboard, the inner surface of which is coated with a substance that becomes fluorescent under the action of Roentgen's rays. The other end is provided with a lens. The object to be examined and the cylinder are placed before the invisible rays developed by a Crookes's tube, when, by applying the eye to the lens, the observer sees on the fluorescent substance the shadow of the objects that are impenetrable to the rays. The instrument is called a cryptoscope, and hopes are entertained that it will shortly be perfected.

It will be remembered that Professor Roentgen, in his first researches, made use of a fluorescent screen for the purpose of testing the transparency of various substances to his *x* rays. In these first experiments it was not possible to do more than determine the existence of transparency, and that when the professor held his hand in front of the screen it was possible to see the relatively more transparent flesh in contrast to the more opaque bones. It was not possible to make out any details of structure. Professor Salvioni, however, has been at work on this application of the discovery, and it is to be hoped that before long we shall have the opportunity of testing its practical utility in England.

I have made some preliminary experiments in the direction laid down by Professor Salvioni, but as yet it is too early to speak definitely on the subject. Next week I hope to have completed a trial of the instrument, and to have the opportunity of describing it and speaking with more confidence of its performance.

AN ALLEGED "BRAIN PHOTOGRAPH."

As to the newspaper reports of the discovery by Dr. Carleton Simm (of New York) of the possibility of photographing the interior of the brain, it is not possible to speak until more details come to hand. The wording of the telegram is quite unintelligible; it runs as follows: "The rays I use in conjunction with sound, and they are electric rays so far as the light is concerned. I produce the effect by attraction of the light and propulsion through the brain substance. At the time of photographing, the whole internal chamber of the brain is illuminated. My discovery is not consequent on the application of the cathode ray to photography." A sufficiently unintelligible communication, which, if not the fault of the reporter, is well calculated to deceive the uninitiated.

THE INFRA-RED RAYS.

At a meeting just held of the Société de Médecine et Chirurgie de Bordeaux, Dr. Armaignac is reported to have shown a very clear photographic proof which he had obtained by simply exposing to the light of a petroleum lamp furnished with a parabolic reflector, a negative in contact with a sensitised gelatin bromide plate, enclosed in an iron box. After three hours' exposure, the plate was developed in the usual manner, and gave a very distinct positive image of the negative. In his experiments with the light of a petroleum lamp, Dr. Armaignac observed that two or three sheets of black paper entirely arrested the photogenic rays, whilst a sheet of iron permitted their easy transmission. Such a result is, of course, at present entirely inexplicable, except on the basis of the work done in this country by Captain Abney, who succeeded in obtaining photographic records of radiant heat. It is just possible that in Dr. Armaignac's case his result was due to this action of the infra-red heat rays. The fact noticed by him that the effect depended upon the presence of the iron, which presumably was heated during the long exposure, seems to support this hypothesis.

VON BERGMANN'S ESTIMATE OF THE NEW PHOTOGRAPHY.

Professor von Bergmann has performed his first operation in which the diagnosis had been made with the help of Roentgen's method. The patient was a young man who, while handling a revolver some time ago, fired twenty small shot into one of his hands. Most of the pellets were removed immediately, and the remainder have now been extracted by Professor Bergmann after their position had been exactly ascertained by means of the new photography. On this occasion the celebrated surgeon made the following remarks: "There are many arts and sciences to which Roentgen's discovery is of incomparably greater value than to surgery, and its application in this art will lead to many abuses. Everybody, I suppose, who knows that he has a bullet or some other foreign object in his body expects it to be found by the new method, and wishes to have it removed by an operation. After many years' practice in peace and in war, I maintain that foreign objects, the presence of which in the body is not the source of any trouble or danger, ought to be left where they are. The consciousness of having some extra lead, for instance, in one's body, especially when it causes one no inconvenience whatever, does not in the least counterbalance the danger of the operation necessary for its removal. This is especially the case in war, when it is often impossible to operate with all the antiseptic precautions. But even in time of peace, when all those precautions can be observed with the utmost care, my advice is not to operate. If special merit was attributed to me in the Russo-Turkish war, in which I was permitted to hold an influential position among the Russian surgeons, I ascribe it partly to the fact that when my colleagues came up with bullet probes of every kind, I dissuaded them from their purpose. Even then I had a tough battle to fight—a battle which is not quite ended even yet, and will now, after Roentgen's discovery, begin afresh. Incomparably more important and progressive, as far as surgery is concerned, is Esmarch's discovery of the means of producing an anæmic condition, which enables one to survey the whole field of operation with greater precision, a result which is not likely to be achieved by means of Roentgen's photographs. I will not, however, for a moment refuse to recognise the importance of Roentgen's discovery to surgery, as well as to other arts and science. It is a welcome addition to the surgeon's means of diagnosis, but Esmarch's bandage and antiseptic are greater achievements still.

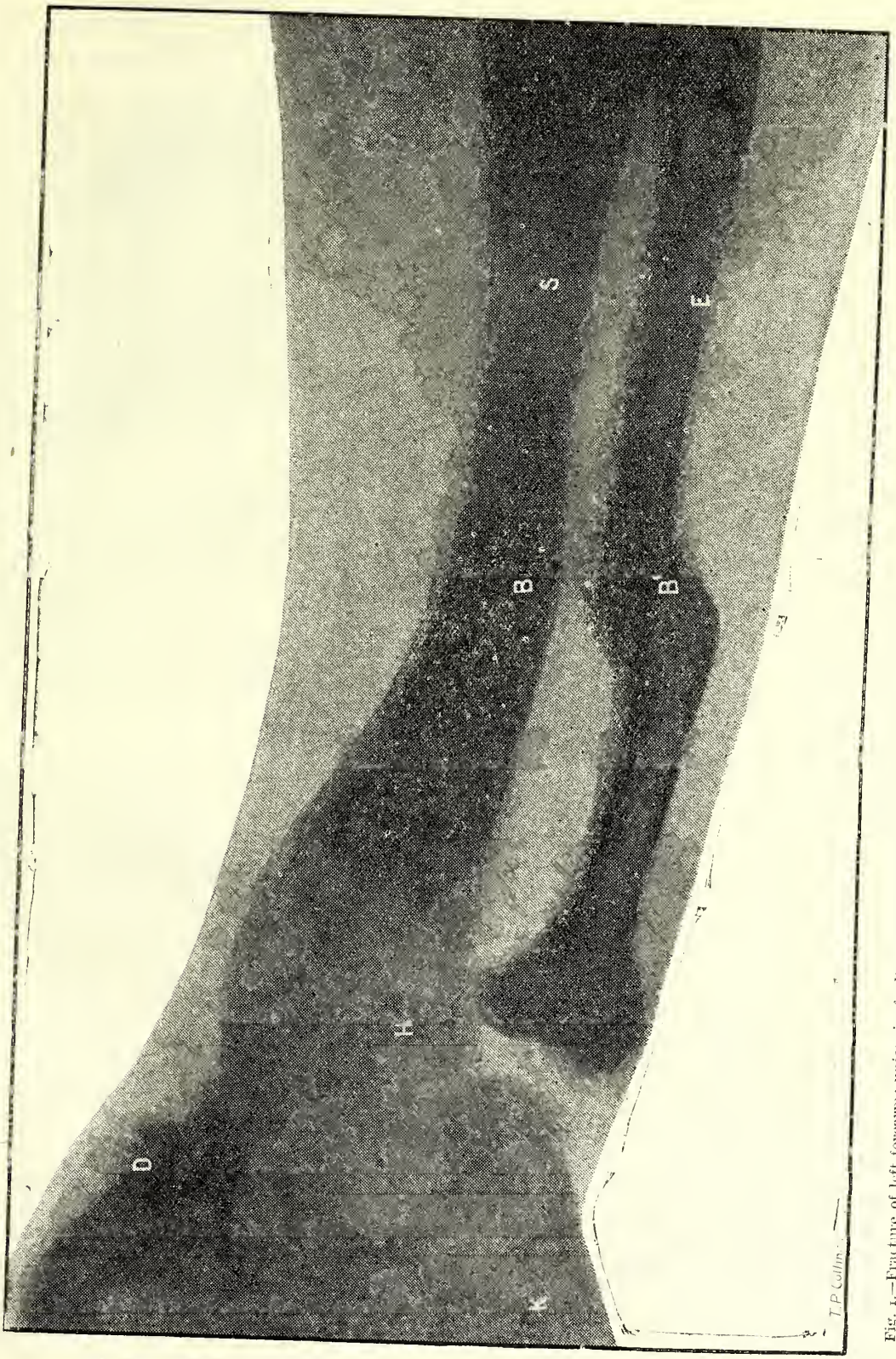


Fig. 1.—Fracture of left forearm; union in faulty position. Photographed on the living subject with Roentgen's *x* rays in the State Physica Laboratory, Hamburg, on January 25th, 1896. D, ball of thumb; K, ball of little finger; H, wrist-joint; S, radius; E, ulna; B, B', seat of fracture.

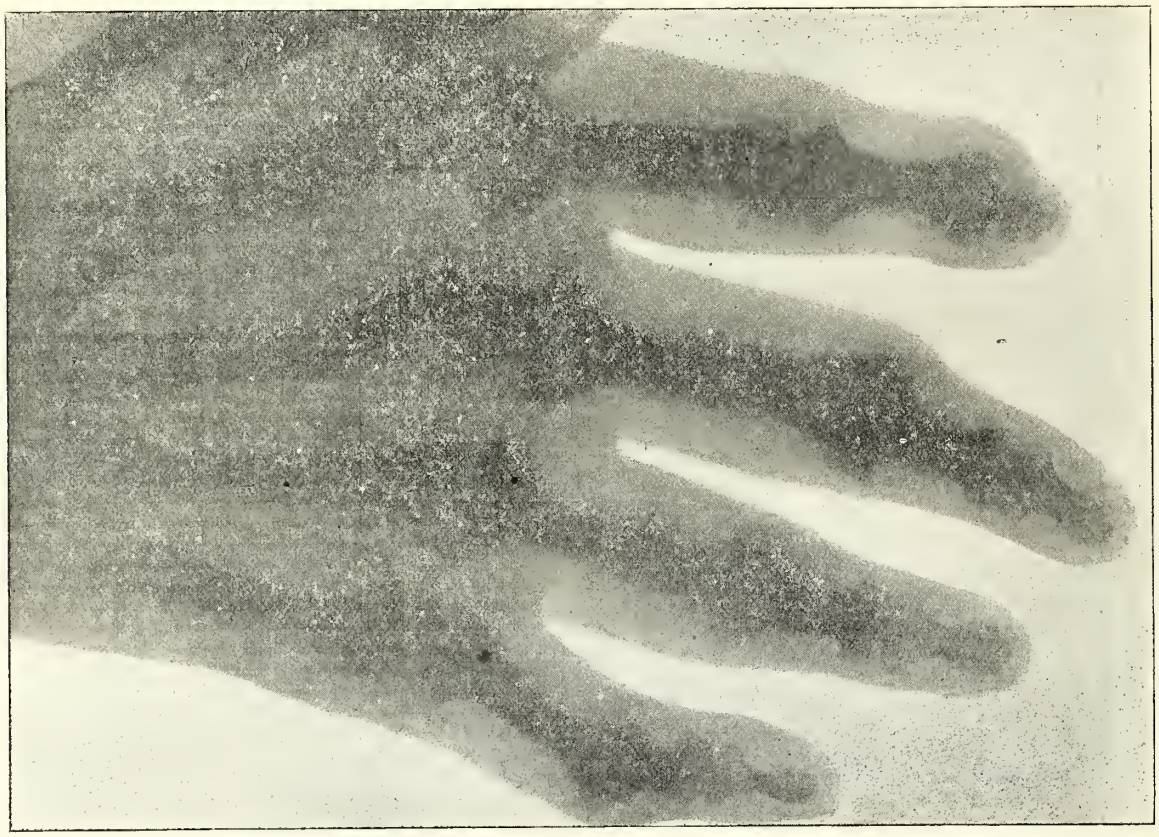


Fig. 2.—Osteo-arthritis of Hand.

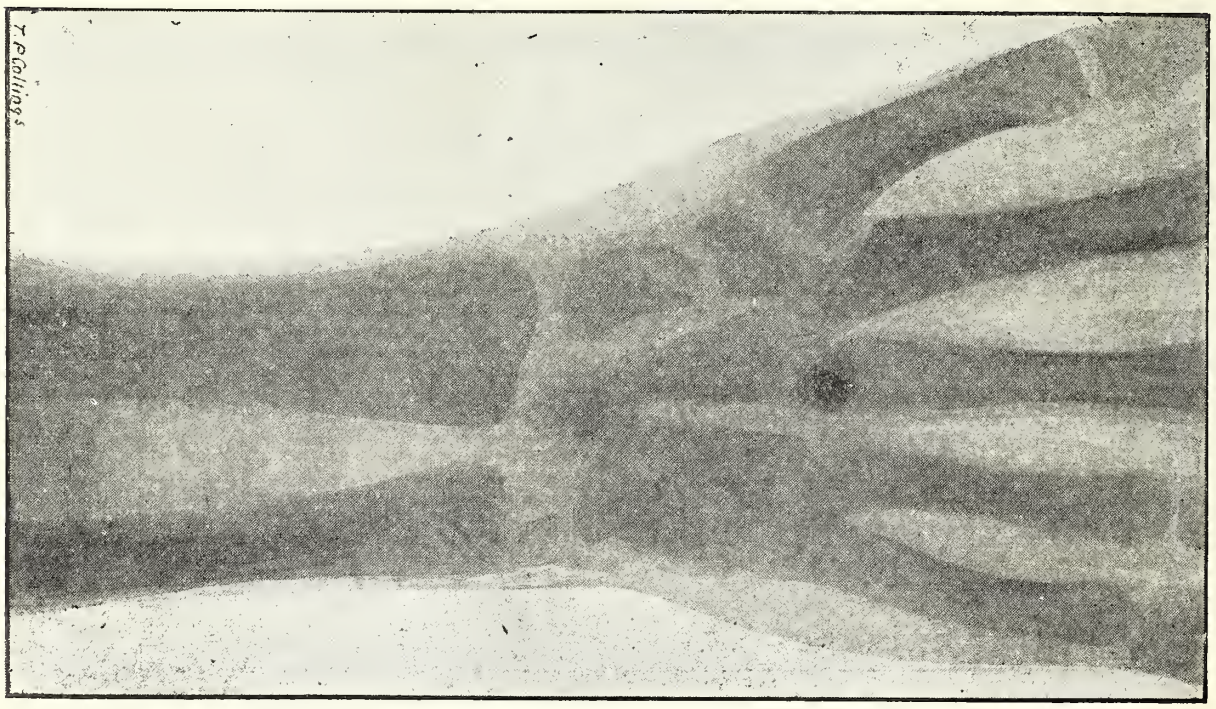


Fig 3. Photograph showing Bullet Embedded in Hand

Fig. 4.—Photograph of Injected Kidney.

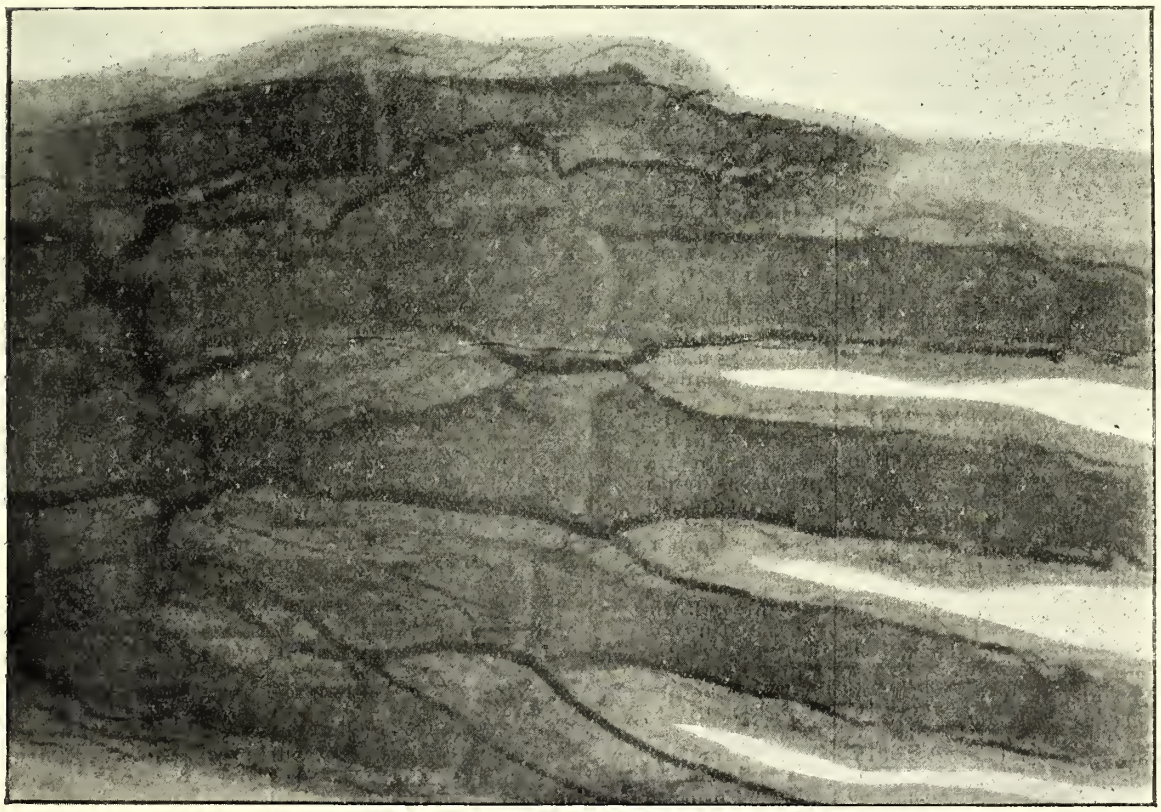


Fig. 5.—Photograph of Injected Vessels of the Hand.

Professor Bergmann's remarks while not in the least detracting from the value of the new method, cannot but be received in this country with all the respect due to the eminent surgeon who made them, and may serve as a warning to many who, perhaps, having had a foreign body quietly encysted in some part of their system for many years, may now rush to have it removed by the aid of the new discovery.

Experiments in London.

The first practical demonstration in London of the value of the new method as an aid to diagnosis has been given in London at St. Thomas's Hospital. Although the case (fracture of one of the finger bones) was a small one, still it exemplified the value of the method, and led to many satisfactory expressions of opinion from the members of the profession then present.

Roentgen Photography at the Royal Society.

A paper by Lord Kelvin on The Generation of Longitudinal Waves in Ether was read at Thursday's meeting of the Royal Society. He described an arrangement for obtaining pressural disturbance through a considerable space of air, accompanied by a very small proportion of ordinary transverse waves. His apparatus would afford the means of exposing sensitive plates to these longitudinal vibrations, and thus might assist in elucidating the nature of the Roentgen rays. A paper by Professor J. J. Thomson was also read relating to experiments from which he concludes that all substances when transmitting the Roentgen rays are conductors of electricity. A discussion followed the reading of these papers, in which details were given of many experiments on these *x* rays. Its general effect was, however, to show that, while many interesting points have been noted, the obscurity hanging over the subject had not been appreciably lightened. Considerable differences of opinion were manifest even upon the conditions of the Roentgen experiments. While some advocated the use of very powerful currents, others had been successful with relatively weak ones; and while some were in favour of regarding the phosphorescence of the glass as the efficient source of the rays, others ascribed them to the glow of the electrodes. A new turn was given to the discussion by Captain Abney, who ventured, amid some expressions of dissent, to doubt whether the action of the Roentgen rays on a sensitive plate could properly be described as photographic. He cited several facts which, in his opinion, excluded the theory of direct photographic action in any ordinary sense, and indicated some preference for the view that the Roentgen rays acted by first setting up phosphorescence or action of some unknown kind in the glass at the back of the sensitive film. This view was corroborated by an experiment described by Professor Dewar upon platino-cyanide of ammonium at low temperatures. This salt, ordinarily fluorescent, only became phosphorescent at the temperature of liquid air. On being exposed to Roentgen rays instead of to ordinary light, while immersed in liquid air, it showed when the liquid air was poured off brilliant phosphorescence. This proved that whatever might be the nature of the Roentgen rays, they were convertible into light rays affecting the human eye. A large number of experiments were also described by Professor Dewar showing that resistance to the passage of Roentgen rays increased with increase of atomic weight. Organic substances were all relatively transparent, following the carbon, oxygen, hydrogen, and nitrogen of which they are composed. Mere complexity of structure made no difference, but substitution products showed increasing opacity in the order of the atomic weights of the combined chlorine, bromine, and iodine.

Mr. Keevil's Results.

The results obtained by Mr. Keevil, and published in the British Medical Journal of February 15th, p. 433, are so remarkable and inexplicable that a few words of reference to them will not be out of place. The first difficulty consists in understanding how it is that, although the presumed source of the rays (the lamp with the broken filament) was placed immediately over the centre of the plate, yet the shadows thrown are such as would result from the source of the rays being very much to the side. Putting aside the improbable hypothesis that the rays travelled in a circle or other curved figure, it will, I think, be admitted that there must have been some other source than that of the broken filament. Possibly such source may be found in the lamps described as being present in the adjoining room, but until Mr. Keevil will make the crucial test of repeating the experiment with all the conditions present, as in the published result, omitting, however, the lamp with the broken filament, it is not possible to ascribe with absolute certainty the source of the rays which affected the plate to this lamp.

The New Photography in Sheffield.

Since February 1st at Firth College Professor Hicks, F.R.S., the Principal, has been experimenting with Roentgen's rays. The apparatus used consists of an ordinary battery of cells with an induction coil and a Crookes's tube. The current has never been used above the strength of one giving a spark of 3 inches. In the earlier experiments, the exposure was usually from twenty minutes to half an hour, but during the last week very good shadows of the bones of the fingers have been obtained under an exposure of a minute and a-half. The Crookes's tube is used with a glass shield, having a window in it of about $\frac{3}{4}$ inch in diameter.

The work on the effects of staining the tissues *en masse* and of the effects of intravascular injections of parts removed from the body or *in situ*, is being carried on by Dr. Addison, of the medical school. The shadowgraph of the bones and vessels of the hand (Fig. 5) was obtained on February 6th from a specimen injected with the ordinary red lead mass used in dissecting rooms, also the one showing the vessels of the kidney. The hand was nailed on to a half-inch board, and therefore is not quite so clear as the kidney preparation (Fig. 4), which was simply laid on the plate beneath the light, the plate having been previously wrapped.

The illustration (Fig. 2) which we also publish is a case of osteo-arthritis from a patient at the Royal Hospital under the charge of Dr. Arthur Hall.

Dr. Hicks has obtained sharper shadows in the shorter exposure experiments; in the joints of the fingers the cartilage appears as a semi-transparent covering of the darker bone, and the ligaments are shown at the side of the joint.

In a case of cellulitis of the finger, with partial destruction of a phalanx, in a child, from the Royal Hospital, the centres of ossification of the bones of the carpus and the epiphyses of the metacarpal bones and the phalanges show very clearly, and would be most instructive for teaching purposes. Another case, that of a boy, supposed to have a piece of a needle in his foot, was examined, and in the prints the needle showed as a dark spot in the less opaque shaft of the fourth metatarsal bone, about an inch from the base. From looking at the negative, where of course it appeared as a bright spot, the house-surgeon, Dr. Stedman, the same evening cut down upon and removed the needle.

The shadow of the hand of another patient from the same institution, under the care of Mr. Pye-Smith, was taken, and a needle found lying deeply in the palm, transversely across the shafts of the three inner metacarpal bones.

After the meeting of the Medico-Chirurgical Society held on Thursday, February 13th, it was resolved to obtain a second set of apparatus for use at the medical school, and a fund was raised for the purpose.

Among the cases that I have investigated and photographed this week are the following:

A CASE OF OSSEOUS ANKYLOSIS SKIOGRAPHICALLY DIAGNOSED AND SUCCESSFULLY TREATED.

By Bertram L. Abrahams, M.B., B.Sc., M.R.C.P.Lond.

The following case is one in which, by Professor Roentgen's method, a diagnosis was made which was otherwise practically impossible, with the result that the condition was cured without the necessity for an open operation.

The patient, V. F., was a youth of 19, who during last summer injured the last phalanx of his right little finger while attempting to catch a cricket ball. When the swelling had subsided he noticed that the last joint of the finger was bent at a slight angle, and found at the same time that it was fixed in this position without allowing either flexion or extension. The condition prevented him from completely closing

his fist, and any force transmitted through the bones of the finger caused great pain, which also resulted from pressure on the last interphalangeal joint. As he was by this compelled to give up all gymnastic exercises, and greatly inconvenienced in other ways, he attended as an out-patient at a general hospital in London. After being treated for some little time, he was told that there had been a fracture of the phalanx extending into the joint, which was now firmly ossified, and that nothing short of amputating the phalanx would afford him relief. Before resorting to this extreme measure, he called on Mr. Sydney Rowland to see if the new method of diagnosis would throw any light on his case. Mr. Rowland took a skiagram which he showed to me. We came to the conclusion that a bridge of bone uniting the two last phalanges had been thrown out as the result of traumatic inflammation of the joint. Next day I saw the patient myself, and found the joint firmly fixed in a condition of partial flexion; I therefore suggested that I should break down the spur of bone which appeared to me to be the sole cause of the trouble. To this the patient readily consented, and, an anæsthetic having been administered I had very little difficulty in snapping it across. The joint could then be normally flexed, but extension was not quite perfect owing to slight deformity of the terminal phalanx. The patient at once expressed himself as delighted with the result. He was immediately able to use his closed fist without pain, and by the use of passive movements the condition of the finger has now become perfectly normal. The skiogram taken by Mr. Rowland immediately after the little operation shows the separation between the fragments of the bony spur.

The points of interest in this case are: (1) The patient was saved the loss of a phalanx. (2) The previous diagnosis was disproved and a condition recognised which could otherwise have been detected only by cutting down upon the joint. (3) The line of treatment was indicated by the discovery that the ankylosis was only partial and not total. All this was ascertained by means of Mr. Rowland's skilful use of the skiographic method, to which the successful issue of the case is mainly due.

This case is therefore the first in which an actual diagnosis has been made by means of the new method. No other method (short of an open operation) could have fixed with any certainty the presence of the small bony spur on which the deformity depended. In all other reported cases some idea has been formed of the presence of such foreign bodies as needles, and the Roentgen method served but to fix its exact position. In this case, however, the complete diagnosis was given, and could have been given by no other method.

Demonstration at the Medical Society.

On Monday next, February 24th, before the Medical Society of London, a demonstration will be given by Mr. Sydney Rowland, B.A., whose articles on the subject have been appearing recently in these columns of the methods employed in producing the shadow photograph by Roentgen's *x* rays. Photographs will be taken of a simple case to illustrate the method more fully. The demonstration will be given at the close of the discussion on two papers on Renal Pain, to be read by Dr. Ralph and Mr. Hurry Fenwick.

Other cases of interest are:

PHOTOGRAPH SHOWING BULLET DEEPLY EMBEDDED IN WRIST.

By Professor Oliver Lodge, F.R.S.,
University College, Liverpool.

G. H., aged 12, was brought to my laboratory by Mr. Robert Jones with a pellet of lead lost in his left hand or forearm. Two preliminary short exposures to Rœntgen rays indicated that the metal was not in a fleshy part readily penetrable by those rays, but was probably embedded among the bones of the wrist. The difficulty consisted in the opacity of those bones.

I therefore took a tube with large electrodes made and exhausted by my assistant, Mr. E. E. Robinson, containing potash, so that its vacuum could be adjusted to the best value, and arranged a magnet to concentrate the inside cathode rays on a definite part of the glass, which phosphoresces and acts as the source of the rays, the rays spreading from each point of the glass in all directions. The boy was comfortably seated at a table with his palm down on an aluminium-protected Edwards's isochromatic half-plate, 9 inches vertically below the vacuum tube, and rather more than two hours' exposure was given. The coil used was an ordinary Rahmkorff, giving about 2-inches spark at most, and it was excited by five storage cells. The vacuum was such that a 1-inch spark in air was usually preferred to the tube. The result was to bring out the wrist bones clearly and to show the position of the pellet (Fig. 3).

Note by Mr. Robert Jones, F.R.C.S.E. (Honorary Surgeon to the Royal Southern Hospital, Liverpool).—G. H. was brought to me by Dr. Simpson, of Waterloo, having shot himself in the left hand just above the deep palmar arch. The wound was enlarged, but the bullet could not be found, and it was thought injudicious to prolong the search in view of the important structures in the vicinity unless one possessed a clue to its position. Professor Lodge kindly consented to take a photograph, and the position of the bullet was very clearly outlined; it lies against the base of the third metacarpal bone over its articulation with the os magnum. This is, I think, the first photograph taken of a bullet embedded in a wrist, in this case considerably thickened as the result of inflammation. It will now be quite easy to extract it. The photograph (Fig. 3) was taken in the presence of Dr. Houlgrave, who succeeded Dr. Simpson in the treatment of the case.

We shall be glad to hear of further cases of interest for investigation, and in which the new photography has been or can be usefully applied, and we place the services of our Commissioner at the disposal of our members for such a purpose. The cases at present most suitable are bone affections of the hands and feet.

I have succeeded in very greatly reducing the exposure necessary to obtain distinct images on the photographic plate. I have not yet completed the experiments I am carrying out in this direction. I have found that certain fluorescent solutions, if applied to the plate and allowed to dry on, very materially hasten the process. In one instance I obtained a very good negative of the hand in twenty seconds. Another method which, while not giving such good results, yet is very promising, consists in placing a fluorescent screen immediately in front of the plate.

THE LIONEL SMITH FUND.

We are glad to be able to announce that since the last appeal made in the British Medical Journal the following additional subscriptions have been received by Dr. de Havilland Hall (47, Wimpole Street, London, W.), who is acting as the Honorary Treasurer of the Fund. The circumstances of peculiar hardship under which Dr. Lionel Smith found himself compelled, after many years of service in another colony, to accept the appointment of District Surgeon at Rorke's Drift, are already well known to our readers. He has proceeded to Zululand, where he will shortly arrive, but it is to be feared, in an almost penniless condition:

	£	s.	d.		£	s.	d.
Dr. Simpson Ladell ...	0	10	6	Mr. E. W. Emtage	0	5	0
Dr. G. Fielding Blandford ...	1	1	0	Mr. Frank Pearce	1	1	0
"A Tardy Subsbriber" ...	1	1	0	Mr. S. R. Platt, D.L. (per			
Mr. Gilbert Barling	2	2	0	Dr. George Thomson) ...	5	0	0

We have also received the following subscription, which we have forwarded to Dr. de Havilland Hall:

Mr. P. B. Burroughs ... ... 5s.

IRISH DISPENSARY ELECTIONS.

In his address to the Dublin Branch, which we published on February 15th, Mr. Thomson urged the need of competitive examinations for Poor-law medical appointments in Ireland, and he stated that elections are not always conducted with a regard to the candidates' merits. A very strong proof in

support of his case was then in existence had he known of it. A correspondent sends a copy of the *Dundalk Examiner*, in which the following document appears:

Town Hall, Enniskillen,
January 21st, 1896.

At a meeting of the Nationalist Guardians of the Enniskillen Union, held here this day, Mr. J. Jordan, M.P., presiding, and twenty-six members present, it was unanimously resolved:

"That inasmuch as we, the Nationalists, could not return our Catholic and Nationalist candidate for the medical officership of the Enniskillen Workhouse, we withdrew Dr. Kelly and supported Dr. Wilson, the farmer's candidate, against Dr. Kidd, the candidate of the landlords, gentry, and their agents and hangers-on, on an understanding and an arrangement with Dr. Wilson that he would support and use his influence with the Dispensary Committee in recommending to them Dr. Kelly, and to have him returned as medical officer for the Barronstown Dispensary district, and we hereby recommend Dr. Kelly to the consideration of al sections of gentlemen on said Dispensary Committee."

Signed on behalf of the meeting,
JEREMIAH JORDAN, M.P.

We do not know how this is looked upon by the gentlemen who are parties to it, but it will strike the ordinary reader as an unjustifiable arrangement all round. If the facts are properly represented in the resolution given above, we think the Local Government Board ought to have their attention drawn to them. Elections under such conditions are simply farcical; and their legality may well be questioned.

SEVEN fresh cases of cholera were reported in St. Petersburg from February 1st to February 8th. The medical reports show no further cases in the province of Kieff.

THE series of the Royal Society *Catalogue of Scientific Papers*, covering the years 1874-83, has just been completed by the publication of Vol. xi. containing the authors between Pct.—Zyb.

FRENCH CONGRESS OF ALIENISTS AND NEUROLOGISTS.—The Seventh French Congress of Alienists and Neurologists will hold its opening meeting at Nancy on August 1st. The questions proposed for discussion are: 1. The Pathogeny and Pathological Physiology of Hallucinations of Hearing; 2. Symptomatology of Tremors; 3. The Confinement of Lunatics in Special Institutions; Treatment and Legislation.

THE ST. PETERSBURG SCHOOL OF MEDICINE FOR WOMEN.—The Russian Government has assigned an annual grant, equivalent to about £10,000, to the Medical School for Women in St. Petersburg. The city undertakes to provide another £2,400, and private munificence has raised an endowment fund of £70,000. Preliminary courses are already being given, but another year must elapse before the school can be housed in its own buildings.

MESSRS. Oliphant, Anderson, and Ferrier, St. Mary Street, Edinburgh, announce a series of biographies of "Famous Scots." We gather from the prospectus that "uniformity of treatment, distinctly national colouring, and unity of criticism," are to be the characteristic features of these little books. Among the earlier volumes, besides those devoted to Scott, Carlyle, John Knox, Robert Burns, and other glories of Scotland, we note with pleasure that there is to be one of Sir James Y. Simpson, by E. Blantyre Simpson. In addition to the biographies of particular men, there will be volumes on such subjects as admit of a grouped or conjoint as distinguished from an individual treatment, such as medical, scientific, legal, and artistic notabilities.

THE Annual Report of the Library Committee of the New York Academy of Medicine presented at the meeting on January 2nd, gives the number of medical journals on file as follows: American, 7; English, 80; French, 140; German, 167; in other languages, 56: total 653. The number of new books added to the library during the year was 2,039; of duplicate copies of books, 1,006; and of pamphlets, 3167. The total number of volumes in the library is 33,140. There were 6,574 readers during the twelve months, being 590 more than in the previous year. The funds at the disposal of the Library Committee during the year had been 5,458 dollars (about £1,080), and there was a deficit of 79 dollars. The Committee asked for 5,000 dollars (£1,000) for 1896, which was 500 dollars (£100) more than had been appropriated in 1895.

ASSOCIATION INTELLIGENCE.

NOTICE OF QUARTERLY MEETINGS FOR 1896. ELECTION OF MEMBERS.

MEETINGS of the Council will be held on April 15th, July 8th, and October 21st, 1896. Candidates for election by the Council of the Association must send in their forms of application to the General Secretary not later than twenty-one days before each meeting—namely, March 26th, June 18th, and October 1st, 1896.

Any qualified medical practitioner, not disqualified by any by-law of the Association, who shall be recommended as eligible by any three members, may be elected a member by the Council or by any recognised Branch Council.

Candidates seeking election by a Branch Council should apply to the Secretary of the Branch. No members can be elected by a Branch Council unless their names have been inserted in the circular summoning the meeting at which they seek election.

FRANCIS FOWKE, *General Secretary.*

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the offices of the Association, 429, Strand. The rooms are open from 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 2 P.M. Members can have their letters addressed to them at the Office.

BRANCH MEETINGS TO BE HELD.

METROPOLITAN COUNTIES BRANCH.—General meeting of the Branch will be held at 20, Hanover Square, W., on Monday, March 2nd, at 8.30 P.M. Business: The Relation of the Association to the Question of Medical Protection and Defence. The Relation of the Profession to Medical Aid Societies.—ANDREW CLARK and ISAMBARD OWEN, Honorary Secretaries.

METROPOLITAN COUNTIES BRANCH: NORTH LONDON DISTRICT.—A meeting of the District will be held on Thursday, February 27th, at 4 P.M., at the Hampstead Infirmary. Dr. Cleveland will preside. Dr. Norman Kerr will read a paper upon Cases of Recovery without Operation in Obstruction after Fæcal Vomiting. Interesting clinical cases will be shown by Dr. Cook, Medical Superintendent of the Infirmary. The District Committee will meet at 3.50 P.M.—HUGH WOODS, M.D., Honorary Secretary.

METROPOLITAN COUNTIES BRANCH: SOUTH LONDON DISTRICT.—The next meeting will be held in the Court Room of Guy's Hospital (by kind permission of the Treasurer) on Wednesday, March 4th, at 8.30 P.M., Dr. Hector Mackenzie, Vice-President of the District, in the chair. A paper will be read by L. A. Dunn, F.R.C.S., on some cases of Intestinal Obstruction. Cases of clinical interest from the wards of the hospital will be shown. All practitioners, whether members of the Association or not, will be heartily welcomed.—H. BETHAM ROBINSON, Honorary Secretary, 1, Upper Wimpole Street, Cavendish Square, W.

STAFFORDSHIRE BRANCH.—The second general meeting of the session will be held at the North-Western Hotel, Stafford, on Thursday, February 27th, 1896. The President, Dr. George Reid, will take the chair at 4.30 P.M. Communication from General Secretary *re* Medico-ethical Committees; report of Council on the Abuse of Medical Charities; exhibition of Pathological Specimens, Living Cases, New Instruments, etc. Mr. J. F. Hall-Edwards (Moseley) has kindly undertaken to demonstrate Roentgen's Rays as applied to Shadow Photography. Papers: Mr. F. Edge: Vaginal Cœliotomy. Dr. W. G. Lowe: Uncontrollable Vomiting of Pregnancy. Dinner at 7 P.M., 5s., exclusive of wine.—F. MILNES BLUMER, Honorary Secretary, Stafford.

SOUTH-EASTERN BRANCH: EAST SURREY DISTRICT.—The next meeting of the above District will be held at the Queen's Hotel, Upper Norwood, on Thursday, March 12th, at 4 P.M., J. H. Galton, M.D., of Upper Norwood, in the chair. Dinner at 6 P.M.; charge 7s., exclusive of wine. All members of the South-Eastern Branch are entitled to attend, and to introduce professional friends. Nominations for representatives on the Council of the Association will be received. Papers: Dr. Pye-Smith: The Local Distribution of Diseases as an Aid in their Diagnosis. Mr. J. Bland Sutton: On Wandering Spleens. Mr. A. H. Tubby: Some Painful Affections of the Foot. Members desirous of exhibiting specimens or reading notes of cases are invited to communicate at once with the Honorary Secretary, HENRY J. PRANGLEY, Tudor House, Anerley.

BATH AND BRISTOL BRANCH.—The fourth ordinary meeting of the session will be held at the Grand Pump Room Hotel, Bath, on Wednesday evening, February 26th, at 7.30, Carey Coombs, M.D., President. The following communications are expected:—Mr. R. J. H. Scott: Harrison's treatment of Lupus; three cases will be shown. Mr. W. M. Beaumont: Argyrosis (card case). Mr. S. E. Rigg: A case of Intestinal Obstruction, with specimen. Dr. Arthur S. Wohlmann: The Clinical Significance of the Human

his wife, and all his children up to the age of 12 years; that many of these members likewise belong to the National Deposit Friendly Society, and when ill require to be attended by him as the dispensary medical officer. Surely this is only natural; if the member can get his medical attendance for 1d. a week in this way it is hardly likely he will be willing to pay the higher rate of the National Deposit Friendly Society. Were our correspondent not attached to this dispensary he could insist on the scale allowed by the latter, but he can hardly do so if the member can command his services on another account. The intention of the National Deposit Friendly Society is that if medical aid is procured through its means the practitioner shall be paid according to its scale of fees, but not to prevent members, if they choose, from getting their medical attendance in another way.

THE ASHANTI EXPEDITION.

The Entry into Kumassi.

Our correspondent with the advance column writes from Kumassi on January 17th: The troops arrived to-day after a tiring march from Leda Sewa. It was only a ten-mile march, but it was one of the most tiring we have had, as we were only able to get forward at a mile an hour, but halted half way and had tea. The previous day the bearer company marched from Edurrku. For the past three days the column has been in fighting formation; the bearer company was divided, the left half company under Surgeon-Captain O'Callaghan marched in rear of the special service company, next came the 14th West Yorkshire, and the right half company bearer company followed them. The portion of the provisional company Medical Staff Corps told off as a flying field hospital under Surgeon-Major Porter came on in front of the rearguard. There has been no fighting, but the medical staff have had a very busy time of it. Fever has had far more victims than the Ashantis would have had with their flintlock and old rifles. At Suberri the bearers picked up nine of the Special Service Corps who were down with fever, and took them on to Naunku, where a native house was arranged by the Principal Medical Officer as a hospital, the men of the bearer company looking after them. There have been no cases up to date of dysentery; all the cases are from fever, with high temperature ranging from 103° to 104.5°, with severe pains in head and back; very few men fell out to-day. The bearer company had two cases of fever during the last four days; both have been sent to the field hospital. Surgeon-Major Porter has recovered from his second attack of fever; he is very hard worked. Surgeon-Lieutenant Spencer has been detailed from the bearer company to help at the field hospital; he left on the 15th.

The field hospital brought in 37 sick to Kumassi this afternoon. They are all comfortably quartered in native houses, chosen by the Principal Medical Officer this morning. The bearer company are quartered close to the field hospital, also in native houses. Kumassi is a very dirty, straggling, native town. The water supply ought to be good, as it springs out of the earth, but it is muddied and dirtied by the natives. When proper arrangements are made by the Royal Engineer Department we expect to have very good drinking water.

All the troops are quartered in the town. King Prempeh and all his chiefs had a parade before Sir Francis Scott at 5 o'clock this afternoon. All the Ashantis seem most friendly; still, we do not quite trust them. The Principal Medical Officer hopes to be able to start a complete hammock train to the coast by the 19th. The transport has failed, or there would have been no difficulty in arranging it at once. The cots and hammocks of the bearer company, now that there is to be no fighting, are to be used for this hammock train. We do not expect to be more than four days here. The Governor arrives to-morrow. Surgeon-Captain O'Callaghan is down with a slight attack of fever; Lieutenant Wilson, A.S.C., attached for transport to the bearer company, is ill with fever. Major Wolf Murray is also very ill.

Arrangements for the Return.

This is our last evening in Kumassi. We all—that is, white troops—start for the coast to-morrow (January 22nd). The 2nd West York Regiment starts at 6 A.M.; they escort King Prempeh and all the prisoners. Surgeon-Captain Maher still in medical charge, of the headquarters, follows them; then half of what is left of the bearer company, with hammocks for sick if any fall out; Sergeant-Major Steward is in charge of these men as Surgeon-Captain O'Callaghan is still ill. At Kwisa, which is five marches from this, Surgeon-Captain Wilson will join the bearer company, and go on in command of this half bearer company if Surgeon-Captain O'Callaghan is still too ill to resume his duties with the company. At 6.30 the Special Service Corps starts, with the other half and headquarters of the bearer company under Surgeon-Major W. O. Wolseley. The baggage and ammunition train follow, and then comes the field hospital. It was found impracticable to arrange a hammock train for the removal of the sick, so all the sick in the field hospital will be removed with and by the hospital to-morrow; they have had a very busy and anxious time since the day we arrived; it was no small matter to arrange for the housing of 60 sick in those small dirty houses. It has been very well done, the patients have been comfortably housed and well looked after; the result is most satisfactory as all the cases are improving. Great credit is due to Surgeon-Major Porter and his Staff-Surgeon Captain Joslin and Surgeon-Lieutenant Spencer. There is an excellent supply of medical comforts in the shape of tinned chicken (whole), champagne, brandy, etc. There has been an issue of fresh bread for the last two days. There was an issue of fresh beef on Saturday, but it was not a success, it was very poor in quality and tough.

There are 2 of the Medical Staff Corps in hospital suffering from fever. On Saturday there were 58 in the Field Hospital—31 of the West Yorks, 21 Special Service Corps, 3 Medical Staff Corps, 1 Royal Engineers, 1 Royal Artillery, 1 Ordnance Staff Corps. I do not think that Kumassi is so very unhealthy; it is nearly 400 feet above sea level. Where we are camped is on a height above the palace and principal part of the town. All the weeds and high grass have been cut down and a clear view of the town obtained. After Prempeh was taken prisoner on Monday, the Royal Engineer Department were ordered to pull down a lot of houses; they also blew down with gun cotton most of the fetish trees, some of which were huge specimens. They also went into the sacred grove just outside the palace, where only the kings are allowed to be buried, and dug up the graves, and pulled down the paling round it. The palace is the only two-storeyed house in the place. The houses are rather clean inside. All the sleeping places are on a plinth of 2 feet 6 inches, but outside the houses filth abounds. The valley where all the victims' bodies are thrown is a most ghastly sight. The portion where the bones lie is only about half an acre in extent, but from the piers of bodies thousands must have been thrown there. There are several fetish trees in the grove which have been blown down by the Royal Engineers. I went to see the great Fetish House burned down yesterday; it was a grand fire. I think all this ought to put an end for ever in Kumassi to human sacrifices. None of us are sorry to bid adieu to Prempeh's country. All the hospitals and camps are being evacuated, and the sick from them sent down to the coast. I hear that there have been 140 admissions in the Base Hospital up to the 15th and 1 death. We make a day's halt on the 23rd at the Adra river. The 2nd West Yorks go on a day in advance from there with the prisoners.

Prince Henry of Battenberg.

Our correspondent at the base (Cape Coast Castle) gives the following particulars with regard to Prince Henry's journey to the coast. He left Mansu at 7.30 A.M. on January 15th, and arrived at the base hospital on the same day at 10 P.M. On the following day (January 16th) he had high fever, but on January 17th the temperature was comparatively low, and he was much better. The Prince expressed a desire to leave at once, and was embarked on H.M.S. *Blonde* that morning. He went on board in good spirits in medical charge of Surgeon-Captain Hilliard. The *Blonde* left immediately.

The Sick at the Base Hospital.

Our correspondent adds that down to January 22nd, the date of his letter, some 175 men had passed through the base hospital, chiefly men of the Yorkshire Regiment and the West Indian Regiment. Only 6 men of the Special Service Corps had been admitted (2 of them suffering from scalds). The type of fever has been decidedly mild, no case of fever having lasted more than eight consecutive days, although many had had relapses. Most of the cases of remittent fever were associated with vomiting of bile, which seemed to relieve them. We have had two slight showers

this week. We hear that there are 3 officers and some 50 men sick at Kumassi who will be sent down country in the next few days. Two officers and 7 men left in the mail steamer to-day; 12 men were to have gone, but there was only accommodation for 7. Another case of dysentery arrived yesterday from the front. With the exception of a European sergeant in the West Indian Regiment, who died, all the cases of dysentery have done well under ipecacuanha and opium.

UNQUALIFIED PRACTICE AND THE LAW.

That the Medical Act requires amending is fairly well known to most members of the profession, and two prosecutions under Section 40 by the Medical Defence Union lately at Cardiff has brought this fact into greater prominence than ever. In one case a person calling himself "Dr." Bridgwater has, according to the evidence given at the police court on February 12th, been practising as a physician, his name not being upon the *Register*. He was summoned by the Medical Defence Union for "wilfully and falsely using the title of Doctor of Medicine." The defence raised was that there was no false pretence, inasmuch as he displayed his true qualification, namely, that of a qualified American body, and always appended the letters U.S.A. to the title M.D. whenever he used it in his advertisements. The stipendiary, after hearing certain of the witnesses only, dismissed the summons, but without costs. His remarks, as reported in the *South Wales Daily News*, are as follows: "It appeared to him that the sole question for determination was whether the defendant used a description implying that he was registered under the Medical Practitioners Act *(sic)*. The description he did use, as it appeared on every handbill and document which had been put in, was 'Dr. Bridgwater, M.D.U.S.A.' If he was a medical practitioner of U.S.A. he could not be a medical practitioner under the Medical Practitioners Act. Therefore there could not be a doubt that he did not use a description implying that he was a registered practitioner of the United Kingdom, and the summons must be dismissed."

Without wishing to comment upon this judgment, which we learn will be, if possible, appealed against in the High Court by the Medical Defence Union, and will therefore form the subject of inquiry by the judges in the Appellate Court, we would only refer to the case lately reported in the British Medical Journal, that of Ferdinand, who under almost exactly identical conditions was prosecuted and fined the full penalty; he appealed to the Quarter Sessions, and the conviction was confirmed with full costs. No Act of Parliament should be framed so as to admit of such absolutely opposite interpretations in England and in Wales as to the meaning of one of its clauses. On similar lines, the two cases being almost identical, a magistrate in London convicts, inflicting the full penalty, and in Cardiff the stipendiary dismisses the summons. Those who have the drafting of a new Medical Act will do well to bear these two cases in mind.

The second action to which we referred above was also taken by the Medical Defence Union at the same court, and therefore before the same stipendiary magistrate. The particulars are thus reported in the *South Wales Daily News:* "The court then took the summons against Eliza Foster McDonagh Frickart, who was also charged with wilfully and falsely pretending to be a doctor of medicine. Mr. Ward, for the prosecution, said in this case there was a certificate. The defendant was at one time registered, but her name had been erased from the *Register*." The defence raised was that Miss Frickhart (who was associated with "Dr." Bridgwater in his practice) was a licentiate of King's and Queen's College, Dublin, and a doctor of medicine of the University of Zurich, and that her name had been erased from the *Register*, she having changed her address, and not having received any notice that her name had been erased. In the report it does not appear that this statement was contradicted; the erasure was actually under the 29th Section of the Act for infamous conduct in a professional respect, and all the necessary forms had been followed by the General Medical Council before the erasure was effected.

The magistrate in spite of the prosecution producing evidence of the erasure, dismissed the summons on the following grounds—namely, that "once a doctor of medicine always a doctor." He does not think the defendant could be said to have wilfully and falsely pretended to be a doctor of medicine, she being in fact a doctor of medicine. This case, too, will probably be made the subject of appeal, and therefore we cannot comment upon it.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[Report to the British Medical Journal.]

By SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

IV.

Intensification.

Now that the first excitement caused by Professor Roentgen's remarkable discovery is over, the weekly record of discoveries, although none the less interesting, cannot but have lost much of its attraction to those who care only for the results of its practical application. I have pursued my investigations in sensitising the photographic plates especially for impression by the *x* rays. I am glad to report I have met with success, although I have not yet reached such a final stage as would warrant a full explanation of my process.

Fig. 1.—Photograph of the case of Osseous Ankylosis recorded by Dr. B. L. Abrahams in the British Medical Journal, February 22nd, page 496.

Foreign Bodies.

Reports continue to come in of the successful application of the new method from all parts of the country. Dr. Hall Edwards, of Birmingham, has succeeded in locating a bullet in the hand of a patient, and in another case a needle was easily found.

Dr. Hazelwood Clayton, of Queen's Hospital, Birmingham, has sent a description of a successful attempt to locate the position of a needle by the new method, and an account of its extraction. Similar success is recorded by Professor Wertheimer and Mr. Charles A. Morton, and at page 558 a full report is given of a case of needle in the foot operated on by Dr. Mackenzie Davidson, of Aberdeen. In this case a wire was used around the foot externally to serve as a guide to the localisation of the needle. The plan may have a further application in other cases, as the shadow of the wire could be clearly seen in the photograph.

Fig. 2.—Photograph of patient being skiographed together with the apparatus necessary; on the left is seen the induction coil and on the right the Leyden jars and Tesla transformer. The operator controls the key and passes the current at intervals of a quarter of a minute, so as to give the tube time to cool and to allow the glass to recover from the intense molecular strain.

Possible Application to Abdominal Surgery.

Professor Kinsing, of Hamburg, is reported to have been successful in obtaining a photograph of a fœtus *in utero*. If this report proves to be correct, it opens up a wide field of useful applications in the domain of abdominal surgery. Here, perhaps, will be some of the greatest uses of the new method.

Cases.

Among the cases I have investigated this week are the following. The first case, that of F. B., is as follows. The notes have been kindly forwarded by Mr. Battle:

F. B., aged 30, was seen by Mr. Battle as an out-patient on February 14th. She was complaining of pain in the region of the metacarpo-phalangeal joint of the right thumb, which she said was due to the presence of part of a needle which she ran into this part of her hand six months ago. An attempt to find the needle three months previously had failed. There was an appearance of slight swelling in the neighbourhood of the joint, considerable tenderness, and some feeling of resistance, but the needle could not be got between the fingers nor an end distinctly felt. The patient was advised to have a photograph of the hand taken by the Roentgen rays. This was done by Mr. Rowland, and the needle was seen to be lying across the metacarpo-phalangeal joint. On February 21st, when the patient was anæsthetised, Mr. Battle made an incision half an inch in length on the outer side of the joint, and at once came upon the end of the needle, which, being extracted, was found to be a fragment three-quarters of an inch long.

In another case of suspected tuberculous disease of the foot I obtained a very good skiogram. As to its interpretation, however, I am not quite certain. At the head of the metacarpal bone of the great toe are two whitish patches, the meaning of which is not quite evident. It is possible that they represent tuberculous foci.

I have also, in conjunction with Mr. Waggett, made two attempts to obtain a negative that would show the position of foreign bodies in the larynx. Neither attempt could be said to be quite successful, although the second gave signs of promise, and I have every hope of succeeding in the end.

Among the many communications received is one from Mr. John Finley calling attention to some work which was done nearly twenty years ago by Mr. William Brookes. In March, 1877, Mr. Brookes read a paper before the London Photographic Society at the Society of Arts. This paper was published at the time in the *British Journal of Photography* and in the *Photographic News*. Mr. Brookes there calls attention to the action on a photographic plate of certain invisible actinic rays. He used an ordinary horseshoe magnet about 8 inches long, poles uppermost, and the sensitive plate was distant about half an inch from the poles. A card with certain perforations was placed between the poles and the plate. Images were obtained both of the perforations and of certain letters on the card, which had been obliterated as it was supposed with Indian ink. Whether the rays which produced these results were of the same nature as Roentgen's *x* rays must remain an open question.

THE POSITION OF A BROKEN NEEDLE IN THE FOOT DETERMINED BY MEANS OF ROENTGEN'S RAYS.

By JAMES MACKENZIE DAVIDSON, C.M.,
Ophthalmic Surgeon, Aberdeen.

DR. GEORGE GIBB, who sent me the case, has favoured me with the following notes:—

"On February 13th, J. P., aged 9 years, was brought to me with the history that half a sewing needle was in her foot. She had on the morning of February 11th been walking barefoot across a room when a needle sticking in a mat entered her foot and broke in two, one part remaining in the foot the other being found on the floor. She was unable to stand, with severe pain. On examination a small round punctured wound was manifest on the skin of the sole, $3\frac{1}{4}$ inches from the heel, exactly in the middle line of the foot. Palpation caused pain but gave no other clue to the presence or direction of the needle. I sent her to Dr. Mackenzie Davidson that a shadowgram of the foot might be obtained. This was very successfully accomplished, and showed the needle lying in the longitudinal axes of the foot with its extremity not far from the skin puncture. Under chloroform one incision, $\frac{3}{4}$ of an inch in length, was made transverse to the inferred direction of the needle, as revealed by the shadowgram, and about $\frac{1}{4}$ inch behind the point of entrance. The scalpel on penetrating $\frac{1}{4}$ inch in depth struck steel. A longitudinal incision was then made from the steel to the skin aperture left by the needle. The end of the needle was then seen lying at a depth of $\frac{1}{4}$ inch from the surface, and was easily removed by forceps. It proved to be $1\frac{1}{16}$ inch in depth. The operation was rendered extremely easy by the accuracy with which the needle had been located."

I will now give a short description of the apparatus employed and the method adopted. The current from the main reduced from 110 volts to about 8 or 10 works a 10-inch spark induction coil made by Apps, London. A Tesla's apparatus (supplied by Messrs. Baird and Tatlock, Glasgow) is interposed, and the Crookes's tube used is similar to the one of which an illustration appears in the BRITISH MEDICAL JOURNAL of February 8th.

One of the chief difficulties is to get sharp shadows. I find that the whole lower surface of the tube gives origin to the *x* rays, and evidently not uniformly so, as is shown by the following experiments: I put nails of varying sizes into a piece of thick cardboard perpendicularly, and across two of them, at different levels, I placed two knitting needles, and laid the whole on a photographic plate, which was wrapped in three folds of black paper. The Crookes's tube was placed perpendicularly 2 inches above the head of the middle nail, and the current was turned on for five minutes and the plate developed. The negative showed that the middle nail immediately beneath the centre of the tube cast a circular shadow, but the ones at the side cast comet-like shadows, and the knitting needle, 1 inch from the plate, gave four shadows. The one half an inch from the plate gave a very blurred shadow. From experiments of this kind I learned how to estimate the size and position of objects from the character of their shadows, and had it not been for these preliminary investigations I doubt whether I could have correctly interpreted the position of the broken needle from the shadow it cast in this case. The method employed was as follows:

The Crookes's tube was 6 inches from the photographic plate (Cadett lighting), which was wrapped in three folds of black paper. I fixed a piece of small copper wire across the sole of the patient's foot, near the wound. The child then placed her foot flat upon the plate, so that the puncture on the sole lay perpendicularly beneath the centre of the tube, and forty minutes' exposure was given. My tube had been in use for some time, and so the bones do not come out well, but the wire is distinctly seen, and in exactly the middle line the cometlike shadow of the broken needle. The wire was $\frac{6}{16}$ inch in front of the small puncture in the sole of the foot, and in the negative the lower point of the needle is $\frac{7}{16}$ inch from the shadow of the wire, showing that one end was a little behind the puncture. The sharpness of the shadow indicated that the end near the wound was lowest, and not far from the skin. The blurred appearance of the other part clearly indicated that it was higher and in the middle line of the foot. I judged it to be about an inch in length. These particulars, given before the operation, proved correct, and I think this case confirms the opinion that for the detection of metal in the body, the Roentgen rays will be of marked service. In cases where the exposure might have to be too prolonged to show the bones clearly, the use of wire or wires as landmarks appears to me to make localisation easier and more precise. What is required is a tube that will give intense *x* rays coming from a point. With our present tubes short exposure means proximity to the tube and more or less blurred shadows, or else at a greater distance sharper shadows, but a prolonged exposure.

THE USE OF ROENTGEN'S RAYS IN THE DIAGNOSIS OF PAINFUL TOE.

SIR,—In the BRITISH MEDICAL JOURNAL of February 15th Mr. Sydney Rowland supplies a photograph of a human foot which shows clearly the lateral displacement of the distal phalanges of the three outer toes, with atrophy of the proximal phalanges produced by the use of tight boots. He gives the history of the case, saying that it may be of use in the explanation and treatment of similar symptoms when again met with.

In the *Lancet* of March 19th, 1892, p. 628, similar symptoms were described, and similar treatment recommended under the heading "A Form of Painful Toe." Two cases of this affection were recorded, in one of which downward displacement of the second phalanx of the left fourth toe, and in the other lateral inward dislocation of the distal phalanx of the right little toe were respectively held to be the cause of prolonged suffering. It is satisfactory to find that this view as to the pathology of this most common and distressing complaint has been confirmed by the use of Roentgen's rays—a method of precision at that time unsuspected.

My object in writing, however, is to emphasise the fact that neither Roentgen's rays nor any special knowledge is required for the recognition and cure of this affection, but only the use of common sense by both practitioner and patient.

Not long ago a stout elderly woman consulted me for pains in both feet. Six or eight months previously, during a tiring walk uphill on a very hot day, she was suddenly seized with acute burning pain in the third and fourth toes of the right foot. The pains were at once relieved by taking off her boot, but from that time whenever she wore it, whether standing, walking, or sitting with the foot hanging down, the pains recurred. They were absent so long as she wore large loose slippers or walked barefoot. In order to relieve the right foot she had taken to resting all her weight which was considerable—on her left foot, and lately she had had severe pains referred to the dorsum of that also, which was evidently due to strain of the long extensor tendons and anterior annular ligament. The right toes were not paining her at the time I examined her, nor could I find actual displacement of the phalanges then. The terminal phalanges of the toes were, however, unduly mobile, and on squeezing the

toes together the characteristic boring burning pain was at once reproduced. Her boots were square-toed, the uppers stiff and unyielding; they overhung the soles, which were thin and too narrow.

On making her stand on tiptoe and placing the boot beside the foot for comparison, it was obvious that there was not room for free lateral expansion of the toes whilst the boot was being worn. Hence, as soon as the foot became congested and slightly swollen whilst the boot was on, the toes were crushed together and the pain occurred.

I was once asked to see a young lady, who was said by her mother to be suffering from rheumatism of the feet. She had danced steadily through the season, and had wound up by fainting at a ball owing to excruciating pains which had occurred suddenly in both great toes. I found that the metatarso-phalangeal joints were swollen and tender and the great toes themselves pointed strongly inwards. She was in the habit of forcing her naturally small feet into elegant little high-heeled pointed shoes, the forepart of which would not admit three of my fingers abreast.

On my suggestion that her sufferings were caused by wearing these she became extremely indignant, and told me flatly that I was talking nonsense. "The shoes," she said, "could not be too tight, because she could kick them off with ease whenever she chose." Also "she had worn similar shoes all her life, and had never had such pains before, so it was perfectly absurd to suppose they had anything to do with it."

I failed to convince her of the flaw in her reasoning, and she eventually dismissed me, stating her intention of seeking other advice, which I sincerely hope she got.

Unfortunately it is a fact that patients of this sort keenly resent a doctor's use of common sense for the treatment of their ailments, both because they think it implies a want of it in themselves, and also because it appears to minimise the importance of their case. These are the Naamans whom we have to treat. In deference to their susceptibilities it may be advisable to dignify the homely complaint—painful toe—with some such ponderous title as podo-phalangalgia. The Greek is not very bad, and may serve to reconcile them to the simplicity of the treatment, which is—to wear boots in which the toes can be as freely expanded as when standing barefoot or tiptoe. Let the heels be low, the soles broad, and the uppers flexible. Elegance in appearance can be ensured without damage by closely fitting and supporting the instep.—I am, etc.,

Upper Berkeley Street, Feb. 17th. Leonard G. Guthrie.

THERAPEUTIC USE OF ROENTGEN'S RAYS.

Sir,—In view of the expectations which have found expression in the lay press regarding the possible curative action of the Roentgen rays, it may interest your readers to know the results of some preliminary experiments made by Professor Schuster and myself in relation to this during the last two weeks. We had from the first arranged that, as soon as other work would permit, the action of the *x* rays on bacteria would be tested. On February 17th and on the following days nine tubes containing quite recent cultures of the cholera vibrio, bacillus coli communis, and bacillus of typhoid fever, were exposed to the rays for 15 minutes, 30 minutes, and 1 hour. Control tubes were kept under exactly the same conditions (but for the exposure to the rays). From each of these tubes minute quantities of material were taken to inoculate in each case one tube of bouillon and two or three tubes of nutrient gelatine. On watching these tubes for several days afterwards it was found that no difference could be detected between the growths of organisms which had been exposed to the rays and of those which had not been exposed. The growth being absolutely equal and typical in the thirty-nine tubes under observation.

On February 19th a new set of tubes was prepared, this time the organisms used being the bacillus anthracis, the bacillus of typhoid fever, and the cholera vibrio. Nutrient gelatine was this time used as the medium on which the bacteria were exposed to the rays.

A continuous exposure of 1 hour 15 minutes, followed after an interval by an exposure of 45 minutes, had no effect whatever on the growth of the tubes.

Under these circumstances it is difficult to believe that the Roentgen rays possess a very powerful germicidal action. Yet, it must be remembered, that with more concentrated or reinforced rays, and also with longer exposure, it is possible that we may obtain different results.—I am, etc.,

Sheridan Delépine.

The Bacteriological and Physical Laboratories,
Owens College, Feb. 25th.

CRYPTOSCOPY.

Mr. A. A. Campbell Swinton, electrical engineer (Victoria Street, S.W.) writes: It may interest your readers to hear that, with the assistance of Mr. J. C. M. Stanton, I have succeeded, by means of the Roentgen rays, in actually seeing the coins inside a leather purse, the metal instruments inside a closed wood and leather case, a coin through a piece of wood half an inch in thickness, and also through a sheet of aluminium. Photography was not employed, but the shadows of the enclosed objects were made directly visible to the eye by means of a fluorescent screen. The precise arrangement was similar to that recently described by Professor Salvioni, of Perugia, whose results, though in accordance with certain experiments of Professor Roentgen, have, so far, been received in this country with a certain amount of scepticism. The apparatus consisted of a tube of opaque pasteboard with a simple aperture at one end, to which the eye was applied. The other end was provided with an opaque diaphragm of double black paper upon which, on the inner side, was laid a piece of blotting paper impregnated with platino-cyanide of barium in a crystalline state.

The purse or other object was held against the diaphragm with the Crookes's tube beyond it, so that the rays from the latter cast a shadow of the coins through the leather and black paper upon the inner impregnated screen. The platino-cyanide fluoresced brightly under the stimulus of the rays on those portions of the blotting paper where no shadow was east, and consequently the form of the metallic objects was made clearly visible. Non-metallic objects were also clearly seen, though more faintly, owing to their greater transparency to the rays.

Besides being exceedingly interesting in itself, and possibly capable of sufficient improvement to render it of service in medicine and surgery, the appliance will be very useful for the purpose of ascertaining without the tedious process of exposing and developing a plate whether any given Crookes's tube is suitable as regards exhaustion and form for photographic purposes. It can be seen at once whether the tube is working at the best advantage, and is giving clearly defined shadows.

P.S.—Since writing the above I have been able to see quite distinctly the bones in the thick portion of my own hand.

ASSOCIATION INTELLIGENCE.

NOTICE OF QUARTERLY MEETINGS FOR 1896. ELECTION OF MEMBERS.

Meetings of the Council will be held on April 15th, July 8th, and October 21st, 1896. Candidates for election by the Council of the Association must send in their forms of application to the General Secretary not later than twenty-one days before each meeting—namely, March 26th, June 18th, and October 1st, 1896.

Any qualified medical practitioner, not disqualified by any by-law of the Association, who shall be recommended as eligible by any three members, may be elected a member by the Council or by any recognised Branch Council.

Candidates seeking election by a Branch Council should apply to the Secretary of the Branch. No members can be elected by a Branch Council unless their names have been inserted in the circular summoning the meeting at which they seek election.

Francis Fowke, *General Secretary.*

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the offices of the Association, 429, Strand. The rooms are open from 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 2 P.M. Members can have their letters addressed to them at the Office.

BRANCH MEETINGS TO BE HELD.

Yorkshire Branch.—The next meeting of the Branch will be held at Huddersfield, on Wednesday, March 18th, at 3.45 P.M. Members intending to read papers or to propose members of the Association as members o

the Branch, are requested to communicate at once with the Secretary.—ADOLPH BRONNER, Honorary Secretary (*pro. tem.*), 35, Manor Row, Bradford.

SOUTH-EASTERN BRANCH: WEST KENT DISTRICT.—A meeting of this District will be held at the Asylum, Barming Heath, Maidstone, on Friday, March 13th, at 4 P.M., Dr. F. Pritchard Davies in the chair. The dinner will take place at the Mitre Hotel, Maidstone, at 6.30 P.M. Charge 6s. 6d., exclusive of wine. All members of the South-Eastern Branch are entitled to attend this meeting, and to introduce professional friends. Gentlemen who reside at a distance, and wish to attend the meeting, are requested to communicate with me on or before Wednesday, March 11th, in order that arrangements may be made for conveying them to the Asylum. The Chairman will give an address on General Paralysis, illustrated by cases in the wards.—EDWARD GROUND, M.D., Honorary Secretary, 1, Ashford Road, Maidstone.

METROPOLITAN COUNTIES BRANCH.—A general meeting of the Branch will be held at 20, Hanover Square, W., on Monday, March 2nd, at 8.30 P.M. Business: The Relation of the Association to the Question of Medical Protection and Defence. The Relation of the Profession to Medical Aid Societies.—ANDREW CLARK and ISAMBARD OWEN, Honorary Secretaries.

METROPOLITAN COUNTIES BRANCH: SOUTH LONDON DISTRICT.—The next meeting will be held in the Court Room of Guy's Hospital (by kind permission of the Treasurer) on Wednesday, March 4th, at 8.30 P.M., Dr. Hector Mackenzie, Vice-President of the District, in the chair. A paper will be read by L. A. Dunn, F.R.C.S., on some cases of Intestinal Obstruction. Cases of clinical interest from the wards of the hospital will be shown. All practitioners, whether members of the Association or not, will be heartily welcomed.—H. BETHAM ROBINSON, Honorary Secretary, 1, Upper Wimpole Street, Cavendish Square, W.

SOUTH-EASTERN BRANCH: EAST SURREY DISTRICT.—The next meeting of the above District will be held at the Queen's Hotel, Upper Norwood, on Thursday, March 12th, at 4 P.M., J. H. Galton, M.D., of Upper Norwood, in the chair. Dinner at 6 P.M.; charge 7s., exclusive of wine. All members of the South-Eastern Branch are entitled to attend, and to introduce professional friends. Nominations for representatives on the Council of the Association will be received. Papers: Dr. Pye-Smith: The Local Distribution of Diseases as an Aid in their Diagnosis. Mr. J. Bland Sutton: On Wandering Spleens. Mr. A. H. Tubby: Some Painful Affections of the Foot. Members desirous of exhibiting specimens or reading notes of cases are invited to communicate at once with the Honorary Secretary, HENRY J. PRANGLEY, Tudor House, Ancrley.

HONG KONG AND CHINA BRANCH.

THE members of this Branch were entertained at dinner by Dr. Cantlie, the retiring President, in the Mount Austin Hotel, Hong Kong, on the evening of Saturday, December 14th, after which the annual meeting for the election of office-bearers for the ensuing year was held.

Election of Officers.—The following were elected:—*President:* J. A. Lowson, M.B. *Vice-President:* S. Westcott, Surgeon-Major A.M.S. *Honorary Secretary* and *Treasurer:* J. C. Thomson, M.D. *Council:* S. Keays, Staff-Surgeon R.N.; A. E. Hayes, Surgeon-Major A.M.S.; P. H. Johnston, M.D., Surgeon-Major A.M.S; J. M. Atkinson, M.B.; J. Cantlie, M.B.; F. W. Clarke, M.B.; W. Hartigan, M.D.; G. P. Jordan, M.B.; F. O. Stedman, M.D.

A MEETING of this Branch was held at the Government Civil Hospital, Hong Kong, on January 10th; Dr. J. A. LOWSON, President, in the chair.

New Members.—Antonio Simplicio Gomes, M.R.C.S., was elected a member of the Association and of the Branch. The following gentlemen, already members of the Association, were admitted to the Branch: F. W. Clark, M.B.; Fleet-Surgeon C. C. Godding, R.N.; Surgeon-Major A. E. Hayes, A.M.S., D.S.O.; Staff-Surgeon S. Keays, R.N.; Surgeon F. D. Lumley, R.N.; Surgeon M. L. B. Rodd, R.N.; Surgeon E. A. Shaw, M.B., R.N.

Communications.—Dr. LOWSON showed a case of Arrested Development of the Female Genital Organs.—Dr. WILM exhibited a series of Bacteriological Preparations under the microscope.—Dr. HARTIGAN introduced a discussion of the Recent Fever Epidemic in Hong Kong, and the following gentlemen took part in it: Dr. ATKINSON, Dr. JORDAN, Dr. STEDMAN, Fleet-Surgeon GODDING, R.N., and Surgeon-Major HAYES, A.M.S., D.S.O. There was considerable diversity of opinion on the subject—relapsing fever, influenza, dengue, malaria, filth fever, and various combinations of these each finding its advocate.

MONTREAL BRANCH.

THE annual general meeting of this Branch was held on January 18th, Dr. T. G. RODDICK, Vice-President, in the chair. Thirty-two members were present.

Election of Officers.—The election of officers for the present year resulted as follows:—*President:* Dr. T. G. Roddick. *Vice-President:* Dr. E. P. Lachapelle. *Council:* Dr. James Penigo, Sir William Hingston, and Dr. Shepherd. *Secretary:* Dr. Springle. *Treasurer:* Dr. J. Alex. Hutchison. *Auditors:* Dr. Kenneth Cameron and Dr. J. H. B. Allan.

Annual Reports.—The reports for the past year were very satisfactory, and showed the Branch to be in a good position.

New Members.—Seven new members were elected.

Invitation to the Association.—After some discussion, it was moved by Dr. J. GEO. ADAMI and seconded by Dr. PROUDFOOT: "That an invitation be extended by the Montreal Branch to the Association to make this city the place of meeting for this year if possible; and, further, that the President be empowered to immediately cable the President of Council and the President of the Carlisle Branch, for their consent." This was carried unanimously with much enthusiasm. In accordance with this resolution Dr. Roddick cabled as follows: "Henry Barnes, Cumberland Infirmary, Carlisle,—Montreal Branch anxious to have British Medical Association present year, August. Will Carlisle waive rights? Answer paid.—Sgd. Roddick, President." A similar message was sent to Dr. John Ward Cousins, President of Council.

Notice of Motion.—Dr. ARMSTRONG gave notice of motion to increase the number of members of Council from three to five.

Communications.—Dr. WYATT JOHNSTON showed for Dr. KIRKPATRICK a specimen of Stomach and Intestine operated upon December 6th, 1894, for gastro-jejunostomy, giving comparative relief to pyloric obstruction for over ten months. Dr. Johnston also exhibited specimens and slides taken from a man who died of Tetanus. A small splinter of wood was taken from the nose, and yielded the bacillus on examination and culture, and also producing the condition in mice to a marked degree. The antitoxin of the British Institute of Preventive Medicine was used without avail. Dr. ADAMI congratulated Dr. Johnston upon the immediate discovery of the bacillus, and remarked that this was far from common.—Dr. JOHNSTON showed for Dr. ARMSTRONG a specimen of successful suturing for Perforating Typhoid Ulcer. The wound had quite united; the patient had died from other causes.—Dr. MARTIN showed for Dr. D. J. EVANS specimens of Purpura Hæmorrhagica of the new form, in which syphilis of the liver and syphilitic type of pneumonia were present. A similar case occurring at the same time in the Maternity Hospital had recovered under treatment.

Vote of Thanks.—A vote of thanks to the officers of the past year having been adopted, the meeting adjourned.

SPECIAL CORRESPONDENCE.

PARIS.

Secondary Effects of Antitoxin.—Non-poisonous Matches.—Parrots and Tuberculosis.—Congress of the French Association for the Advancement of Science.—Funds for Laboratories.—General News.

M. SEVESTRE, at a recent meeting of the Société Médicale des Hôpitaux, referred to the secondary effects of Roux's serum when used in the treatment of diphtheria. Among these are an urticarial eruption; pain in the joints, accompanied by a polymorphous eruption and serious general disturbance. These phenomena are never observed in pure diphtheria, but only when there is infection due to the presence of the streptococcus; they are analogous to the symptoms observed in streptococcus infection independently of serum injections. Roux's serum appears to favour the development of the streptococcus. In pure diphtheria M. Sevestre considers that the serum treatment should invariably be adopted. He also advises it even when the streptococcus is present. When the Loeffler's bacillus is not present it should never be used. M. Le Gendre and M. Gaucher referred to cases in which the use of anti-diphtheria serum was followed by serious complications. M. Gaucher proposed that the Society should send circulars to the medical men in France asking them to notify

THE BLACK FEVER OF ASSAM.

The Need for Further Scientific Inquiry.

During the past fifteen years a remarkable and very fatal disease has been prevailing in some parts of the province of Assam, which has been locally termed kala-azar, or black fever. The symptoms of this malady have been made the subject of observation by a succession of medical officers, administrative and executive, and in the year 1891 Dr. G. M. Giles, an officer of the Bengal Medical Service, was deputed to make a special investigation regarding the prevalence, nature, and prevention of the disease. After a careful inquiry he arrived at the conclusion that kala-azar was substantially an anæmia caused by the presence of the nematoid parasite dochmius duodenalis, otherwise called ankylostoma duodenale, in the upper part of the small intestine. He denied the malarious nature and origin of the malady, and held that the symptoms and sequelæ of malarious fever presented by certain cases were accidental and only what might be expected in a very malarious country. Neither fever nor splenic enlargement was, he maintained, an essential feature of kala-azar, which was simply ankylostomiasis—the same disease which had been described by Kinsey and others in Ceylon, and which had been previously known there as beri-beri. True beri-beri—the peripheral neuritis of Pekelharing and Winkler—did not exist in Assam; but a spurious beri-beri similar to the Ceylon disease did prevail extensively among tea-garden coolies and the general population, and this was simply the anæmia caused by the ankylostoma. He studied the natural history of the worm, found that it lived and underwent an intermediate phase of rhabditic development in the soil, and he believed that infection was wrought by contamination of food by the ova of the rhabditis, which the habits of the people rendered very possible.

Dr. Giles's conclusions have been questioned by a great number of medical men who have seen and studied kala-azar in Assam, and in the latest sanitary report of the province there are observations by Surgeon-Colonel Stephen, M.B., and Drs. Borah, Mullane, Campbell, Macnamara, and MacNaught, which indicate that the question of the nature of this disease is still unsolved. It may be admitted that the ankylostoma duodenale is a very common parasite in Assam, and that the invasion in force of the human intestine by this worm does give rise to profound and fatal anæmia; but the researches of Dobson, MacConnell, and others indicate that it is a very common parasite throughout India, and that its presence in moderate numbers is quite consistent with unimpaired health. On the other hand, cases of kala-azar present phenomena which cannot be explained by worms, and these have not been found in all cases of this disease.

Dr. Mullane, who has studied the disease continuously since it was first noticed in the Garo Hills in 1881, describes it briefly as follows:

> The disease commenced as an attack of malarial fever, either of the remittent or intermittent type, but most frequently of the former. This fever was allowed to run on unchecked, as the people refused to be treated by European methods—hence the rarity of the disease among the more enlightened and educated portion of the community. The result was that enlarged spleen followed, then the fever usually left the patient. Upon this enlargement of the spleen generally an anæmic condition, together with a peculiar dusky discoloration of the skin supervened, caused perhaps by destructive disintegration of the hæmoglobin of the blood. Consequent upon this anæmic condition dropsy and œdema of the body set in, and the illness was generally terminated by an attack of dysentery or diarrhœa. The *post-mortem* appearances were—an anæmic condition of all the tissues, enlargement and pigmentation of both spleen and liver and intestines; aukylostoma might or might not be present.

This certainly reads like a description of paludal infection, and the other reporters agree in acknowledging that the disease has a decided malarious complexion. Still, there are circumstances connected with its history and phenomena which seem to indicate that it differs from the ordinary malarious fever of the province, and is, if malarious, a special and unusually deadly form of paludism.

> Assam is a narrow valley through which the Brahmaputra river meanders. It is bounded to the north and west by the eastern continuations of the Himalayan Mountains, and to the south and east by successive ranges of hills—the Garo, Khasi, Jaintia, and Naga. From both sides numerous spurs jut into the valley, and at the base of the hills is a tract of terrai which is damp and jungly. The disease was first observed in the year 1881 at the entrance to the Assam valley in the terrai of the Garo hills, on the left or eastern side of the river. In 1862 it extended to the adjoining district of Goalpara, and crossed the river, attacking several contiguous localities, but with less severity. In 1885 the district of Kamrup, which lies next in the valley, was seized, and the plague progressed upwards along the base of the hill range, until in 1892 it reached the further district of Nowgong, where the mortality is now highest. About the same time a subdivision of the opposite district of Durrung on the right bank of the river was invaded, and the mortality there has reached 22 per 1,000; the highest mortality of any registration area being that of the town of Nowgong, namely, 42.58. This was exceeded by the Goalpara municipality, where in 1882 the death-rate caused by kala-azar reached 93 per 1,000. Dr. Mullane mentions the case of a large village which was depopulated and abandoned through death and fright, until it "lapsed into jungle." While the disease has been thus slowly progressing up the valley and invading fresh areas, it has disappeared from its earlier haunts. The number of deaths attributed to kala-azar in 1894 was 13,164, or 5.60 per 1,000 of population against 10,247 or 4.36 in 1893.

The peculiarities of the disease, epidemiologically considered, are (1) a definite commencement and starting point; (2) a well-marked but very slow progress; (3) a limited and decided localisation; (4) a certain duration in each locality successively visited; and (5) a very high mortality. The places and times of worst prevalence are those most favourable to malarious infection, and the symptoms, sequelæ, and mode of death are those of paludism, first acute and then chronic. It has been observed that the localisation of the malady is so well defined that villages and parts of villages have been affected, while others have remained free. Quinine, arsenic, and other antimalarial remedies are said to have no curative effect in advanced cases of kala-azar, though treatment in the earlier stage would probably be more successful.

Surgeon-Colonel Stephen and the civil surgeons, while maintaining that kala-azar is essentially malarious in its nature, contend that there is some additional element determining its peculiar malignity and mode of prevalence which remains to be discovered. It resembles in many respects the severe outbreak of malarial fever which moved slowly about in certain districts of the Gangetic delta (Nuddea, Jessore, Hooghly, Burdwan, Beerbhoom, and Midnapore) in the sixties and seventies. They strongly urge special inquiry.

The Assam Government resists this suggestion, on account of its cost, remarking that the remedy of kala-azar is known, namely, improved sanitation. This is to some extent true; but the disease unfortunately rages and kills, and dispensaries have been established for the cure of its victims in infected tracts. Are the sick to be treated with quinine or thymol, or both? And as regards protection, are not measures of special sanitation feasible or imperative in anticipation of that general sanitary reform which the Government contemplates, but which, in view of the nature of the country and its inhabitants, must be an achievement of a remote future? It is bad policy to struggle with an unknown foe in the dark, and if ever there was a case for special investigation, this is one. We want to know more about the causation of these slowly-moving invasions of malignant paludism, and the present seems a most apt opportunity for endeavouring, with all the aids of modern science, to solve the enigma presented by kala-azar in the Assam Valley.

THE LONDON SCHOOL BOARD AND MEDICAL CERTIFICATES.

At an adjourned meeting of medical men, to protest against the action of the London School Board in regard to the supervision of medical certificates, held under the chairmanship of Dr. Glover, on March 5th, at 20, Hanover Square, the following resolutions were unanimously passed:—

I. That this meeting of medical men interested in the question of School Board certificates for Board School children, as affected by the resolution of May 30th, 1895, records its opinion that the system so adopted is offensive to the profession, and is likely to be disastrous to the health of the children in the schools.

II. That this meeting is of opinion that, pending the alteration of this system, medical men should decline to supply certificates to the children attending Board Schools.

III. That the above resolutions be transmitted in the name of the meeting by the Chairman to the Chairman of the London School Board, with a respectful request that the policy of the resolution of May 30th be revised by the Board so as to secure the hearty co-operation of the medical profession in protecting the children of the elementary schools from infectious and other diseases, and securing the proper attendance of the children.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[REPORT TO THE BRITISH MEDICAL JOURNAL.]

BY SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

V.

A VERY great advance has been made this week, in the introduction of a form of tube by the use of which it is possible to do work with ease that before was very difficult or impossible. This particular form is the result of the work that has been done in London, and is perhaps the greatest advance that has been yet made in the new art. It has been named the "focus tube," from the fact that by means of a peculiar construction a definite point of origin has been obtained for the *x* rays instead of the diffuse surface of the wall of the tube hitherto in use.

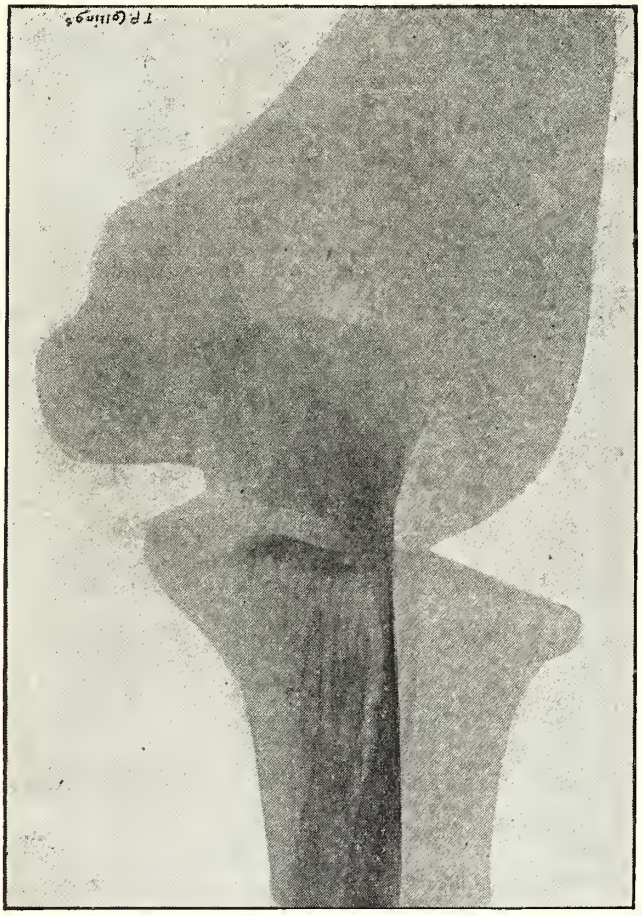


Fig. 1.—Skiagraph of elbow of Dr. Edward Gray's case showing displacement of radius and ulna outwards.

The resulting shadows are therefore far sharper than any that have been as yet obtained, and the most minute detail is readily seen. The exposure too has been very appreciably shortened; thus, in the case of such thick parts as the wrist and elbow an exposure of three minutes is ample. Messrs. Newton and Co., of Fleet Street, have put this tube on the market. Curiously enough, I had independently hit on an arrangement identical with that now being made, and on calling on Messrs. Newton with a view to getting one made was informed by them that they had been at work for a week on producing the same arrangement. My tube was designed for working with a Tesla current, and is consequently double in all respects of the "focus tube." Such good results are, however, obtained with the single arrangement that I doubt if the doubling for use with the Tesla current would be worth the cost unless the difficulty that exists in getting tubes to stand such high pressures can be overcome.

Among the cases I have investigated this week are the following:

DISLOCATION OF ELBOW.

By EDWARD GRAY, M.B., C.M., London.

On February 22nd a young man was brought to me having slipped while playing football that afternoon, and fallen on his closed fist while the arm was outstretched. On examination the elbow was found very much swollen, especially on the inner aspect. No crepitation could be felt, and the forearm could be freely flexed, pronated, and supinated without causing much pain. I came to the conclusion that there was no fracture, and was inclined to think there was no dislocation; but owing to the considerable amount of swelling I could not be certain. I deferred putting him under an anæsthetic, as I thought it would be a good case in which to test the value of the Roentgen rays, so evaporating lotions were temporarily applied until the arm could be skiagraphed by Mr. Sydney Rowland. This was successfully done on February 29th (by which time the swelling had subsided considerably), and showed a rare form of dislocation at the elbow-joint, namely, of both bones of the forearm outwards. Erichsen states that the only instance with which he is acquainted is one reported by Nélaton.

The accompanying skiagraph (Fig. 1) represents the condition. No time was lost in reducing the dislocation under chloroform.

This case is one of great interest both because it is a step in advance towards obtaining skiagraphs of deeper and thicker structures than hitherto and because the diagnosis cannot be obtained by any other means.

SKIAGRAPHY AS AN AID TO THE DIAGNOSIS OF EPIPHYSIAL LESIONS OF CHILDHOOD.

(Under the care of Mr. JOHN POLAND, F.R.C.S.)

The patient, F. C., the son of a deceased medical man, is now aged 17. Nearly three years ago he met with a very rare form of injury to the index finger of his right hand after a fall with a stick twisted in between his fingers, and was sent to Mr. J. Poland by Dr. Atkins, of Sutton. Separation

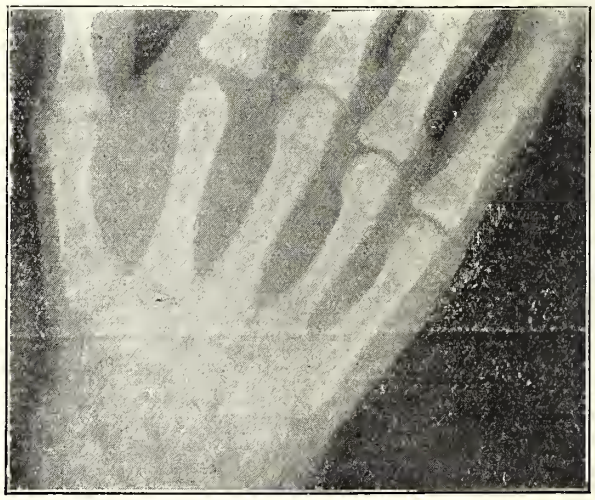


Fig. 2.—Skiagraph of Mr. John Poland's case. Note the separation between the first phalanx and the metacarpal of index finger.

and displacement forwards of the epiphysial head of the second metacarpal bone combined with subluxation of the first phalanx was the diagnosis made at the time. The epiphysis could easily be reduced and the finger placed in good position; but, in spite of careful and repeated application of plaster-of-paris and other splints, the epiphysis again became a little displaced forwards towards the palm.

In this position it finally united to the diaphysis. As a result, at the present time the power of flexion at the metacarpo-phalangeal joint is a good deal restricted and the finger shorter than its fellow.

The skiagraph (Fig. 2) confirms absolutely the supposed lesion of the distal end of the metacarpal bone. The space noticeable between the first phalanx and the displaced posterior margin of the epiphysis and the diaphysial end is probably occupied by fibroid tissue, forming some portion of the new articular surface between the bones. The epiphysial discs of the other metacarpals as well as of the phalanges are clearly seen. Mr. Poland believes the importance of obtaining skiagraphs of certain forms of recent complicated injuries to the epiphyses in children to be very great. At the lower end of the humerus, for example, there are but few anatomical specimens in museums to guide the surgeon in making an exact diagnosis of the numerous and complicated lesions which it cannot be doubted from daily experience must exist during life. Could this knowledge be obtained by Roentgen's method, it will, he believes, materially assist the surgeon in giving a decision as to immediate operative measures in elbow-joint injuries of children, and in removing some of the many instances of subsequent severe deformity and loss of function of the joint and limb now so little creditable to surgery.

Possibility of Skiagraphing the Fœtus in Utero.

With the idea of seeing if this were possible Mr. Rowland made several attempts to obtain a skiagraph of a pregnant cat. There was some difficulty in keeping the cat at rest, and an anæsthetic was rendered impossible by the fact that during a trial with ether and another with chloroform the cat showed signs of danger, so much so that Mr. Hobday, of the Royal Veterinary College, who kindly managed the operation, and at whose suggestion the cat was tried, deemed it inadvisable to proceed. The difficulty was, however, partly overcome by the use of hobbles and bandages, and an exposure of eight minutes showed clearly the pelvis and vertebral columns, and faint traces of the uterine cornua and their contents. Had it been possible to maintain the animal quiet for a longer time, Mr. Rowland had no doubt the experiment would have succeeded perfectly. As it was it showed that intestine and other abdominal viscera transmit x rays with fair facility.

The other cases Mr. Rowland had to record this week are suspected fracture of lower third of radius, tuberculous dactylitis in a child, lesion of wrist (nature doubtful), dislocation of wrist and fracture, search for bullet in leg of man (skiagraph successful, but bullet not found). From this list it will be seen that the deeper structures are at last yielding to the new process.

PROFESSOR SCHUSTER ON THE ROENTGEN RAYS.

Our Manchester correspondent writes: Professor Schuster gave in Owens College on March 2nd a lecture on Professor Roentgen's discovery. A skiagraph of an opaque object was taken, and after it was developed it was exhibited to the audience on the screen. Professor Schuster expressed the opinion that the new rays are possibly, but not certainly, like the rays of light. If they are, they are of very much shorter length than any of those of which we at present have any knowledge. The opacity of different bodies to these rays was not, he said, a difference in kind but only in degree. Some photographs taken at Owens College were shown, including a hand, part of which had been photographed through a sovereign. The bone was distinctly visible through the gold. A very interesting slide was that showing the bones in the hand of a child 6 years of age. The epiphyses could be seen quite distinctly, as cartilage is very transparent. Another showed the presence of a needle in a girl's foot. The usefulness of the discovery will largely depend on the possibility of increasing the intensity of the rays. The present method of using a photographic plate was, he said, very clumsy, for by far the greatest amount of the rays passed through the plate.

CASE OF DISLOCATION OF THE FINGER.

We are indebted to Mr. Frederick Page, surgeon to the Royal Infirmary, Newcastle-on-Tyne, for the following case in which a skiagraph enabled a diagnosis to be made. The skiagraph was taken with an exposure of twenty minutes by Messrs. Brady and Martin, chemists and surgical instrument makers, Northumberland Street, Newcastle-on-Tyne. The

patient was a lad who had received an injury to the ring finger of his left hand about fifteen months ago. When first seen by Mr. Page three months ago it was not possible to determine whether he had suffered a fracture or a dislocation. As will be seen from the accompanying reproduction, the skiagraph at once placed this beyond doubt.

ROENTGEN RAYS AND REFLECTED SOLAR LIGHT.

Sir,—As I have for the last fifteen years been engaged, whenever opportunity offered, in investigating the effects of sunlight on the human body, and especially the penetrating effects of reflected rays from snow and other surfaces, I was naturally led to inquire whether there could be any relation between what I had observed and the observations of Professor Roentgen. He finds that certain rays generated or excited by electrical action penetrate most of the human tissues and other substances, and are stopped by substances of a different nature. I have, on the other hand, demonstrated that reflected luminous or photo-chemical rays also penetrate the human skin into the deeper tissues beneath, and produce within them great and important changes.[1] It will, I think, be interesting to compare a summary of facts and conclusions of various phenomena observed by me from time to time with those published by you on the x rays of Roentgen.

1. That heat *qua* heat is not the cause of sunburn.
2. That there is strong evidence for believing that sunburn is caused by the violet rays or ultra-violet rays of light reflected from snow, which reflected heat is not necessarily of the same quality as that which is incident.
3. Captain Abney finds that the violet or ultra-violet rays are very strong at high altitudes, and believes that altitude has much to do with sunburn.
4. That altitude alone does not explain sunburn, for one

[1] Sunburn on the Alps. *Alpine Journal*, November, 1888; *Sunburn on the Alps*, Edward Stanford, Cockspur Street, S.W., 1890; On the Influence of Solar Rays on the Skin, *British Journal of Dermatology*, No. 58, vol. v; see also British Medical Journal, September 29th, 1894, p. 694.

may be unburnt on rocks, say, at 10,000 feet, and yet become immediately affected on descending to a glacier 3,000 or 4,000 feet lower down.

5. That sunburn and snow blindness arise from similar causes, and that sunstroke and sun fever may be associated with the effects of penetrating light rays.

6. That rays from the electric light produce much the same results as sun rays reflected from snow.

7. That the bronzing of the skin and the browning of the wooden châlets are probably produced by rays reflected from snow.

8. That various pigments, but chiefly those containing red and yellow, stop or alter reflected luminous rays and prevent the physiological and pathological changes usually due to them.

9. That freckles, which are but the milder effects of luminous rays, stop the penetration of those rays through the skin.

10. That the sometimes very serious inflammatory changes in sunburn and in what Mr. Hutchinson designates "summer eruptions" are due to the penetration of reflected luminous or photo-chemical rays through the skin to the deeper tissues beneath.

11. Photography often demonstrates the existence of freckles and, report says, various eruptions deep in the skin which are perfectly invisible to the naked eye, showing that the luminous or photo-chemical rays are by them stopped or altered, and not reflected back, as no change is produced on the negative —an effect which suggests that these photogenic rays have penetrating powers as yet unknown.

12. That the wood of Swiss châlets is burnt perfectly black (carbonised) on its surface by rays reflected from snow, which rays in time penetrate deeply into the substance of the wood and change it to a dark brown colour.

13. That the first effect of snow rays on a new châlet is shown by its action on the resin of the wood, which "sweats out" and leads more easily to the charring of the woody fibre itself and the subsequent changes in the deeper parts.[2]

14. Captain Maude, R.E., has shown from his own personal experiences and from experiments on many friends, that direct solar rays in India produced sun fever of a very serious kind which was entirely prevented by the wearing of an orange lining to all his clothes and inside his hat. These experiments demonstrate the penetrating power of light rays through clothes unprotected by colour, and their important influence on health. In relation to this, I have shown that a lady wearing a linen blouse with red and white stripes was strongly marked with red and white stripes on her shoulders, but the red line on her skin corresponded to the white lines of the linen, that is, the red stripes had completely stopped all rays from affecting the skin beneath them.

15. I have often shown that rays reflected from certain surfaces such as water, gold and silver lace, white walls, white veils, certain clouds and mists, act quite differently to direct light, and that some physical change hitherto unexplained must take place in light during or after reflection.

16. In relation with the foregoing are those marvellous changes in the vegetable kingdom connected with the formation of chlorophyl and the deposition of starch.

From these and many other observations I cannot help feeling that Roentgen's *x* rays will be shown to be modifications only of ordinary light, and that their further elucidation must go hand in hand with a further inquiry into the profound changes caused by reflection to which I have above referred. It need not necessarily be assumed that what we call darkness implies an absence of all the forms of light.—I am, etc.,

Upper Brook Street, W., Feb. 17th. ROBERT L. BOWLES.

[2] Professor Thompson shows now that resin is transparent to Roentgen rays (BRITISH MEDICAL JOURNAL, February 8th, 1896).

INEBRIATES AND A NEW POLICE ORDER.—It was stated, during the hearing of a charge at Greenwich Police-court recently, that an order had been issued from Scotland Yard to the effect that if a drunk person was seen attempting to enter a public-house, a constable seeing him was to prevent the person's entrance. If, however, the intoxicated individual effected an entrance the constable must inform the landlord of the newcomer's state.

ASSOCIATION INTELLIGENCE.

NOTICE OF QUARTERLY MEETINGS FOR 1896. ELECTION OF MEMBERS.

MEETINGS of the Council will be held on April 15th, July 8th, and October 21st, 1896. Candidates for election by the Council of the Association must send in their forms of application to the General Secretary not later than twenty-one days before each meeting—namely, March 26th, June 18th, and October 1st, 1896.

Any qualified medical practitioner, not disqualified by any by-law of the Association, who shall be recommended as eligible by any three members, may be elected a member by the Council or by any recognised Branch Council.

Candidates seeking election by a Branch Council should apply to the Secretary of the Branch. No members can be elected by a Branch Council unless their names have been inserted in the circular summoning the meeting at which they seek election.

FRANCIS FOWKE, *General Secretary.*

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the offices of the Association, 429, Strand. The rooms are open from 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 2 P.M. Members can have their letters addressed to them at the Office.

BRANCH MEETINGS TO BE HELD.

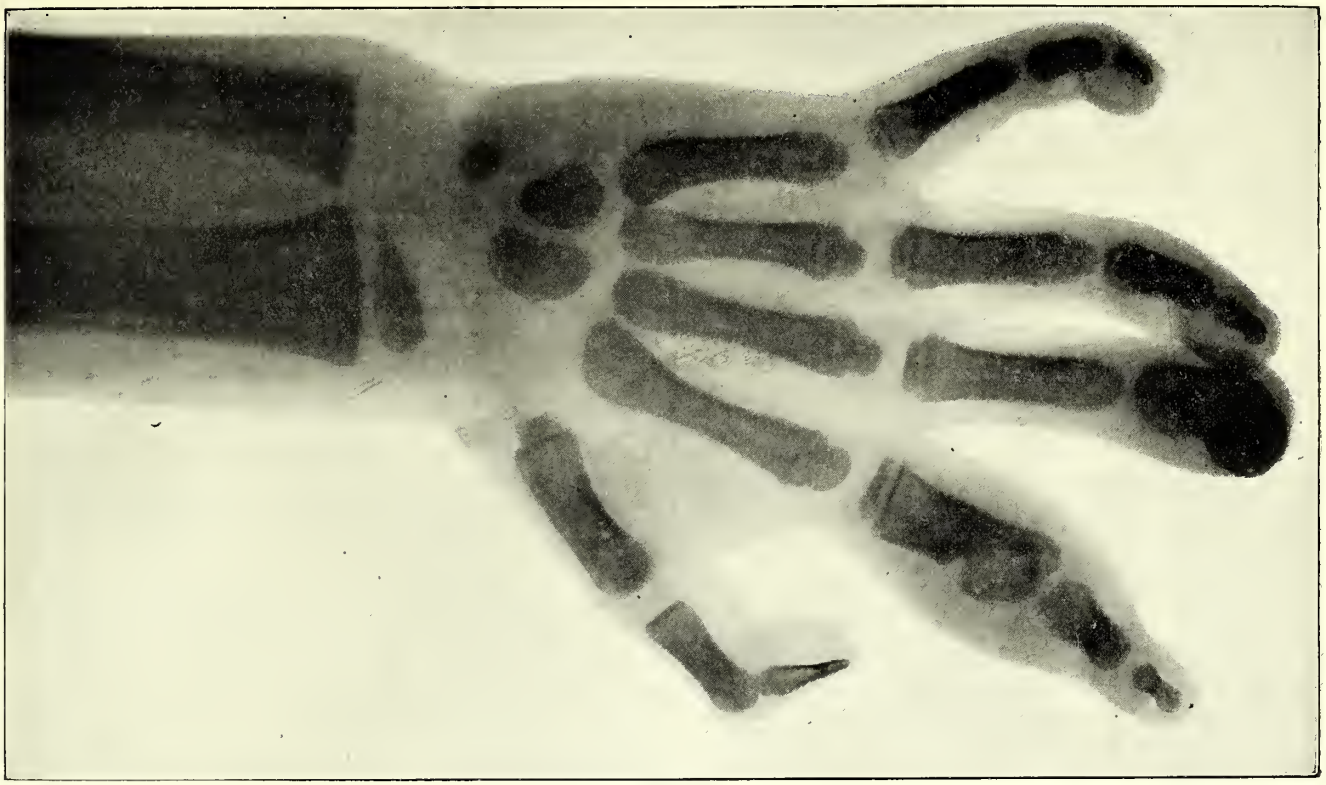
SOUTH-EASTERN BRANCH. EAST AND WEST SUSSEX DISTRICTS.—A conjoint meeting of members of the above Districts will be held at the Grand Hotel, Brighton, on Tuesday, March 24th, at 3.30 P.M. Dr. A. J. Richardson will preside. The following communications have been promised:—Dr. Eustace (Arundel): The Treatment of Cancer by Drugs. Mr. T. J. Verrall: Appendicitis—a Plea for Operating Early. Dr. Hinds (Worthing): Notes of a Case of Ruptured Heart. Dr. Batterham: A Case of Cerebral Thrombosis. Dinner at 5.30; charge 6s., exclusive of wine.—F. HINDS, M.D. (14, The Steyne, Worthing), J. W. BATTERHAM, M.B. (Grand Parade, St. Leonards), Honorary Secretaries.

SOUTH-EASTERN BRANCH: EAST KENT DISTRICT.—The next meeting of this District will be held at Dover on March 19th; Dr. Welsford in the chair. Agenda:—Mr. R. H. Clarke: Copper Poisoning by Siphon Contamination. Dr. Percy Lewis: The Rational Treatment of Scoliosis. Mr. S. Wacher: Nasal Obstruction.—THOMAS F. RAVEN, Honorary Secretary, Broadstairs.

SOUTH-EASTERN BRANCH: WEST KENT DISTRICT.—A meeting of this District will be held at the Asylum, Barming Heath, Maidstone, on Friday, March 13th, at 4 P.M., Dr. F. Pritchard Davies in the chair. The dinner will take place at the Mitre Hotel, Maidstone, at 6.30 P.M. Charge 6s. 6d., exclusive of wine. All members of the South-Eastern Branch are entitled to attend this meeting, and to introduce professional friends. Gentlemen who reside at a distance, and wish to attend the meeting, are requested to communicate with the Hon. Sec. on or before Wednesday, March 11th, in order that arrangements may be made for conveying them to the Asylum. The Chairman will give an address on General Paralysis, illustrated by cases in the wards.—EDWARD GROUND, M.D., Honorary Secretary, 1, Ashford Road, Maidstone.

SOUTH-EASTERN BRANCH: EAST SURREY DISTRICT.—The next meeting of the above District will be held at the Queen's Hotel, Upper Norwood, on Thursday, March 12th, at 4 P.M., J. H. Galton, M.D., of Upper Norwood, in the chair. Dinner at 6 P.M.; charge 7s., exclusive of wine. All members of the South-Eastern Branch are entitled to attend, and to introduce professional friends. Nominations for representatives on the Council of the Association will be received. Papers: Dr. Pye-Smith: The Local Distribution of Diseases as an Aid in their Diagnosis. Mr. J. Bland Sutton: On Wandering Spleens. Mr. A. H. Tubby: Some Painful Affections of the Foot. Members desirous of exhibiting specimens or reading notes of cases are invited to communicate at once with the Honorary Secretary, HENRY J. PRANGLEY, Tudor House, Anerley.

YORKSHIRE BRANCH.—The next meeting of the Branch will be held at Huddersfield, on Wednesday, March 18th, at 3.45 P.M. Members intending to read papers or to propose members of the Association as members of the Branch, are requested to communicate at once with the Secretary.—ADOLPH BRONNER, Honorary Secretary (*pro. tem.*), 35, Manor Row, Bradford.



Skiagram of a case of tuberculous disease in the hand of a child; there is extensive disease in the phalanx of the forefinger. This skiagram illustrates very well the possibilities the new method holds out of localising with great exactness the position and extent of necrotic areas in bone.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[Report to the British Medical Journal.]

By SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

VI.

Working with the new form of tube described last week, I have to record several cases which, although too late for the reproduction of the skiagram, show very clearly how the new process is becoming a definite instrument of diagnosis, and how the deeper structures of the body are fast yielding to its penetrating influence.

The cases are as follows:

Foreign Bodies in the Larynx.

By the kindness of Mr. Waggett I have again had the opportunity of attempting the skiagraphy of foreign bodies in the larynx. Mr. Waggett himself again sat for experiment. A French nail and a fish bone were attached by plaster to the side of the neck, in the exact projected position of the ventricle. Exposure was made for six minutes, and both the nail and fish bone showed clearly in the plate, thus demonstrating conclusively the possibility of discovering foreign bodies impacted in this region. The rest of the structure of the neck showed very faintly or not at all, with the exception of the vertebral column and the hyoid bone. Being mostly cartilaginous, they are very transparent to the *x* rays. For the practical working of the method it will be necessary, therefore, to draw up a projected chart of the region so as to localise with greater exactitude the actual position of any body. I am at work on such a chart, and hope to have it ready shortly.

Skiagraphy as an Aid to the Diagnosis of Lesions of the Elbow, especially of an Epiphysial Nature.

I have had several cases of diseased and deformed elbow to investigate, and in every case a diagnosis was arrived at with certainty. The method is especially useful for epiphysial lesions and obscure dislocations. It has not been found possible to give the cases in detail this week, but it is hoped to do so next, together with the skiagraphs.

Case of Impacted Gall Stones.

By the kindness of Mr. F. C. Abbott, Resident Surgeon at St. Thomas's Hospital, I have had the opportunity of investigating and experimenting upon some cases of great difficulty. In one of these the diagnosis rested between malignant cystic disease and a mass of impacted gall stones. The skiagraph showed clearly the outlines of the ribs, so it is certain that the rays had penetrated the thickness of the body, the greatest thickness as yet recorded. No evidence of any opaque body was, however, to be seen on the plate. Of course it is not possible to say as yet with any certainty that there were no gall stones present, as this is the first case of the kind I have tried. It is, however, of great interest, as showing that it is possible to get the *x* rays to pass through the entire thickness of the body, a result hitherto not attained as far as I am aware.

Sarcoma of Tibia.

Mr. F. C. Abbott also very kindly placed at my disposal a case of sarcoma of tibia, about which there was some doubt. The skiagraph showed most clearly that the bone was itself expanded, and that the tumour did not spring from the side.

These cases show very clearly that the new method is capable of far greater application than has hitherto been thought possible.

Some Practical Applications.

Mr. J. Lawson Russell, M.B., C.M.Edin. (Todmorden) sends us some illustrations of the practical use of the *x* rays in surgery. In the first case a skiagram was taken of the hand of a lady who, when 11 years of age, had a needle run into her wrist. The skiagram shows the point of the needle lying at the base of the metacarpal bone of the little finger. The lady is now upwards of 40. In the second case a gentleman

received an injury of the hand by the smashing of a glass bottle two or three years ago. It was thought from the pain he had suffered that there must be a fragment of glass in or about the joint of the middle finger, but our skiagram shows no glass; the pain is therefore likely to be due to a small nerve implicated in the cicatrix. The third case is an example of tuberculous disease of the bones of the forefinger, under the care of Dr. Smithwaite Black, of Burnley. Dr. Russell adds that within the past fortnight he has succeeded in locating a bullet in the hand of a patient of Dr. Mantle, of Halifax; and in the case of a patient sent by Dr. Stewart, of Batley, succeeded in finding a foreign body (fragment of rusty wire) deeply situated in the wrist. He has been aided in the above work by a local firm of photographers, Messrs. Lord and Brims.

DIPHTHERIA AND THE ANTITOXIN TREATMENT.

(Continued from page 416.)

XIV.—WILLIAM ARNOLD, M.R.C.S. (Crawley, Sussex).*

One case; Tracheotomy refused; Death.—The patient was a boy aged $3\frac{1}{2}$, who had been ailing four or five days before being seen. The tonsils and soft palate were then covered with membrane, the temperature was 100°, the pulse 120, and the breathing stridulous. Ten c.cm. of serum (Allen and Hanburys) were injected; at night the temperature being 102°, the pulse 140, and the breathing unchanged, 10 c.cm. were again injected. Next morning the breathing became more stridulous, but the parents refused tracheotomy, and the child died at midday. A slight trace of albumen was present, but no rash; 5 minims of tinct. ferri perchlor., and 2 gr. of pot. chlor. were given every 2 hours. No membrane could be obtained, and a *post-mortem* examination was refused. Mr. Arnold remarks that the case was far advanced when he was called in, and that the child never seemed to rally, but became gradually worse.

XV.—P. BARNETT-BENTLIF, M.R.C.S., L.S.A., Honorary Surgeon, Jersey Infirmary and Dispensary.[1] *

Ten Cases: Three Deaths.—I. The patient was a girl, aged 2 years, who had been "poorly" for some days, and was suffering from cough with slight fever. On examination the temperature was found to be 101°, the pulse 100, and the respirations 20. There was nothing abnormal in the chest or throat, but the bowels were confined and the tongue furred. Calomel and a saline were ordered, but next day the child was much worse, the breathing being noisy, stridulous, and greatly obstructed. There was loss of voice, and the glands at the angle of the jaw were enlarged and painful. The temperature was 101°, the respirations 40, and the pulse 160; nothing could be seen in the throat. Laryngeal diphtheria was diagnosed, and 10 c.cm. antitoxin were injected. There was slight albuminuria. The child sank and died next morning of exhaustion.

II. The patient, a boy of 6, had been ailing for several days, and was supposed to be suffering from a bad attack of bronchitis. When seen the breathing was noisy and stridulous, the glands at the angle of the jaw were large and painful, and there was great retraction of the intercostal spaces and episternal notch. The temperature was 101°, the pulse 160, and the respirations 60. The child was aphonic, and practically moribund. There was a large membranous patch on each tonsil and the back of the pharynx. As a forlorn hope 15 c.cm. of antitoxin were injected, but the child never rallied and died a few hours later.

III. The patient was a child, aged 2, who complained of pain in the throat. Examination showed patches of membrane on each tonsil: the glands at the angle of the jaw were large and painful. The temperature was 101.4°, the pulse 120, and the respirations 35. The urine was not albuminous. Ten c.cm. of antitoxin were injected at once and repeated next morning, when the child was no better. The next day there was marked improvement, and the patches on the tonsils were much smaller. From this time the child rapidly gained strength; five days after the first injection the membrane had completely disappeared, and three days later the patient was convalescent.

IV. The patient was a boy of 6, who had been ailing for some days, and who was moribund when first seen. There was great dyspnœa, with retraction of the lower part of the chest. The temperature was 102°, respirations 50, and the pulse uncountable. A large patch of membrane was seen on each tonsil and at the back of the pharynx. Fifteen c.cm. of antitoxin were injected, but the child died in six hours.

V. The patient was a boy aged 6, who had been suffering from a "cold" for some days, and whose parents sent for the doctor because he was "nearly choked." The breathing was very stridulous; there was a large membranous patch on the right tonsil and the back of the pharynx, and the glands at the angle of the jaw were enlarged and tender. The voice was lost, the temperature 101°, the pulse 150, and the respirations 50. Poultices were applied to the throat, a steam spray ordered, and 15 c.cm. of antitoxin injected. Next day the patient was about the same; the temperature was 101.2°, the pulse 130, and the respirations 40; 10 c.cm. antitoxin were again injected. The following day the child was much better and the exudation less; the temperature was 99.8°, the pulse 100, and the respirations 30. The urine was slightly albuminous. Tinct. ferri perchlor. ℥x was ordered every four hours. Two days later the membrane had completely disappeared, and on the ninth day from the first injection the boy was convalescent.

VI. The patient was a child aged 3, who had not been well for several days. When seen the throat felt sore, both tonsils were enlarged, and on the right was a patch of membrane; the temperature was 102°, the pulse 120, and the respirations 30. There was complete aphonia with anorexia and general *malaise;* 10 c.cm. of antitoxin were injected. During the night patient was restless and "choky"; next day the condition was about the same, and 10 c.cm. of antitoxin were injected. The following day the exudation had markedly diminished; the temperature was 99.8°, the pulse 100, and the respirations 20; the urine was slightly albuminous. Twenty-four hours later the membrane had entirely disappeared, and on the seventh day of treatment convalescence was established.

VII. The patient was aged 6 and brother to Case I. When seen he complained of sore throat, and had been ailing for some days. There was a large patch of membrane on the right tonsil and a small one on the left. The temperature was 101°, the pulse 120, and the respirations 35; 8 c.cm. of antitoxin were injected. The next day the boy was better and the exudation only half its former size. The urine was slightly albuminous, the temperature 100°, the pulse 98, and the respirations 20. On the following day the membrane had disappeared and the patient was convalescent on the sixth day.

VIII. The patient, a child aged 3, had not been well for some days, and was suffering from complete aphonia and anorexia. The temperature was 101°, the pulse 130, and the respirations 40. There was a membranous exudation on both tonsils and the back of the pharynx, with great dyspnœa and retraction of the lower intercostal spaces and episternal notch. The urine was slightly albuminous; 10 c.cm. of antitoxin were injected. Next day the patient was much the same, the temperature was 101°, the pulse 130, and the respirations 35 and stridulous; 10 c.cm. of antitoxin were injected. The following day the general condition was better, but there was still aphonia; poultices and good light food were ordered. Next day the tonsils were less covered, and food was better taken. Six days after treatment was commenced the exudation had disappeared, and three days later the patient was convalescent.

IX. A sister of Case VIII, had been ailing for several days, and on examination was found to have a patch of membrane on the right tonsil. The temperature was 101°; 10 c.cm. of antitoxin were injected. Next day she was much better, and the membrane had almost disappeared; there was slight albuminuria. A day later the membrane had disappeared, and next day she was convalescent.

X. A sister of Case II, had had a "cold" for some days. The temperature was 100°, the respirations 50, and the pulse 130. The breathing was stridulous, with great retraction of the lower part of the chest and patches of membrane on both

* Reports kindly forwarded by the Director of the British Institute of Preventive Medicine.

[1] See also BRITISH MEDICAL JOURNAL, January 18th, 1896, p. 156.

REPORT ON THE BABY-FARMING SYSTEM AND ITS EVILS.

[Special Report to the British Medical Journal.]

V.—The Infant Life Protection Act in the Provinces.

In a previous article a full description was given of the working of the Infant Life Protection Act in London under the Public Control Department of the County Council. It is proposed now to deal with the administration of the Act in the provinces. We are indebted to the chief constables of the large towns in England for information on the following points: (1) The number of licensed houses under the Act in the district; (2) the system of inspection carried out; (3) the known cases of evasion of the Act; (4) the defects in the Act as proved by local experience of it. In all, twenty-nine chief constables supplied the information asked for either partially or in full, and we are glad to take this opportunity of acknowledging our indebtedness to them.

While prosecuting inquiries for the purposes of this report upon the baby-farming system, the assertion was made to us that the Infant Life Protection Act was practically inoperative out of London; that baby farms existed, independently of the Act, to the number of 600 in the English provinces; and that the Act in its present form was powerless to prevent the evils the suppression of which it has been designed to achieve. The extent to which the truth of these statements is borne out by the inquiry just held will be gathered from what follows.

Paucity of Registered Houses.

Among the twenty-nine towns—and this is inclusive of one Scotch centre, namely, Edinburgh—the evidence shows that only 2 houses are registered under the Act; that is to say, that out of London the Act is operative in respect to the registration of baby-farms in only two instances—there is one registered house in Manchester and one in Bath.

Surprise was expressed in a previous article that there should be only 38 houses registered in London. But it will be admitted that this revelation in respect to the absence of registered houses in the provinces is still more surprising. It seems difficult to realise that in the towns in question the Act is not enforced on the grounds that no necessity for its administration exists.

Illegitimate Births.

In reflecting upon this matter, let attention be directed to the number of illegitimate births in these large centres of population. Excluding Manchester and Bath, the number of illegitimate children born in the year 1894 in twenty-seven of the large towns in England was approximately 5,000. To this large total the Infant Life Protection Act has been shown not to apply; practically, therefore, although the Act was mainly expected to benefit the outcast offspring of illicit intercourse, this inquiry emphatically demonstrates that, so far as these children are concerned, the Act might never have been passed. In the year 1894 the total number of children registered as born out of wedlock in the metropolis was 4,934. The returns for the same period of the number of infants under 1 year is 121 in registered and 275 in unregistered houses.

For argument's sake, let it be assumed that each child of this number was illegitimate; the conclusion then is that the circumstances of only 396 out of 4,934 illegitimate children in the year 1894 became known to the inspectors under the Infant Life Protection Acts, or not more than 8½ per cent. The evidence of the inspectors, however, is to the effect that many houses—baby farms—exist in London of which they have no direct knowledge. The Act, perhaps, may be complied with, so far as the baby-farmer refrains from taking more than one infant under 1 year; but, on the other hand, it is practically certain that by means of the faulty clause relating to the age of the children, and the concession as to one child, in the present Act, many women are enabled to carry on the business of baby farming without the knowledge of the authorities, and without fear of molestation. In view of these facts concerning London, it seems only reasonable to conclude that a similar state of things may prevail elsewhere. Must it be held that large towns such as Birmingham, Leeds, Liverpool, Bradford, and other centres, in which no licensed houses under the Act exist, differ from London in respect to the care and culture of their population of illegitimate children? In this connection, perhaps, valuable information might be obtainable were an inquiry to be made respecting the mortality among the illegitimate children under 5 years of age, say, for the last decade in all the large towns in England in which no registered houses exist.

Absence of Systematic Inspection.

The next point to which attention may be directed has reference to the second query addressed to the chief constables—namely, the system of inspection carried out. The majority of the replies made no mention of this matter. In one the answer was, "In strict conformity with the Acts of Parliament;" in others the word "*Nil*" supplied the information asked for, and in two instances it was pointed out that the Society for the Prevention of Cruelty to Children had an inspector stationed in the town to whom the police looked to receive a report in any case of contravention of the Act. Thus it would appear that no systematic inspection is resorted to by the police—that is to say, that no officials, as in London, are especially made responsible for the inquiries respecting the administration of the Infant Life Protection Act in the districts. So far as the two registered houses are concerned, no information was given with regard to the inspection carried out in one, while in the other it was stated that the house was visited by an inspector of police.

Evasion of the Act.

The replies received to the third query addressed to the chief constables—namely, that referring to the cases of evasion of the Act—was also in the main negative. In all direct answers were received from eleven, and all save two were to the effect that no instance of evasion of the Act had come under notice. In the two cases mentioned it was stated that the persons concerned discontinued their offence as soon as the matter was pointed out to them.

Defects in the Act.

The last point to be dealt with in this connection concerns the opinion of the chief constables upon the question of the defects in the Act, as proved by their experience of it. In nineteen of the replies no mention was made to the subject. In three the answer was "*nil*," in one the opinion expressed was "as proved by my experience of it the Act is satisfactory"; in another, "I have experienced no defects in the Act"; in another, "The provisions of the Act (35 and 36 Vic., c. 38) meet the requirements of my jurisdiction"; in a fourth, "I cannot give any practical opinion on the working of the Act." In a fifth the answer was, "The police keep a strict look-out on all places of entertainment, etc., where the Act is likely to be infringed, and I know of no case where the law has been evaded in this borough since the Act came in force, and I have, therefore, not experienced any defects in this Act."

Uselessness of the Act.

In reflecting generally upon the replies to the series of questions above submitted, the conclusion is unavoidable that the Infant Life Protection Act in its present form is, in the provinces, clearly useless for the purpose of effecting its objects. In Leeds, for example, the population was 222,154 in 1891; and in 1894 the births there of 435 illegitimate children were registered. But the report of the chief constable is to the effect that in this large community no baby-farming is practised. He further states that some years ago the matter of the Infant Life Protection Act was taken in hand, but it was found that there was little or nothing to supervise or register, and thus the inquiry was comparatively dropped. The testimony also of the medical officer of health is to the effect "that it would appear that there is really nothing in Leeds to register." But with Leeds, as with other towns throughout England, inclusive of the metropolis, the question cannot be ignored—what becomes of the large number of illegitimate children if they are not provided for in baby-farms? This is really so important a matter that one would suggest to the chief constables of all the large towns in England that they should depute an officer or officers specially to inquire into the existence of the houses in their districts in which children are taken for

hire. Many such houses must exist, in the provinces unknown to the police. The proprietors of them in all probability are careful to keep within the letter of the law, but the fact nevertheless appears to be indisputable that the police in the provinces have but little knowledge of the Infant Life Protection Act, inasmuch as it fails to accomplish its objects. It might be well that the Legislature should call for a return from all the large towns in the kingdom, showing as nearly as possible the number of unregistered houses to which the present Act does not apply. If full details were forthcoming in this particular, including the number of the children received, their ages and the rate of mortality, the data would undeniably be of use in showing how far the need for some change in the Act was urgent as would appear to be the case.

ADMINISTRATION OF THE ACT IN EDINBURGH.

A few words may now be added respecting the administration of the Infant Life Protection Act in Edinburgh. According to the chief constable's report, there are no licensed houses under the Act in the city. Persistent and regular steps are taken by the police to ascertain whether the Act is evaded; but we are informed that these steps are not of such a kind as to make it desirable that they should be published. Again the chief constable states that no cases of evasion are known to him, but there are numerous cases in which several children have been adopted by the same person, although no cases are known in which the adoption of a child under 12 months of age has taken place until the others have passed that age. Thus it may be gathered from these replies that a good deal of care is exercised in administering the Act in Edinburgh so far as its limited provisions will allow. The further opinion is added: "It seems to me that the Act should be amended so as to embrace all persons who 'adopt' more than one child, irrespective of the age of the children." It is curious to note that of all the replies received from the chief constables, this was the only one which contained any criticism upon the working of the Act.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[REPORT TO THE BRITISH MEDICAL JOURNAL.]

BY SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

VII.

IT seems as if for the present the new process had reached another stationary stage. The introduction of the focus tube caused an immense advance—from the hand to the limbs and joints—and now we must await the next stage—the skiagraphy of the trunk. Such an advance, to be of practical use, can be made in two directions—either by increasing the power of the tube or by rendering the plates more sensitive. Although with the methods at present in use it is just possible to get through the entire body, yet such a result is too uncertain and takes too long a time at present to be of much practical use in diagnosis.

CONVERSION OF LIGHT WAVES INTO *x* WAVES.

The most interesting record of the week is the fact that it has been found possible to convert light rays into *x* rays.

M. Troost has stated to the Paris Académie des Sciences that the *blende hexagonale artificielle*, or hexagonal zinc sulphur, can replace Crookes's tubes used by Roentgen. The artificial "blende" that M. Troost and M. Henri Sainte-Claire Deville obtained in 1861, having the form of hexagonal prisms, is transparent, either colourless or faintly yellow, and is capable of becoming phosphorescent under the influence of the sun. These crystals, placed in a cardboard box, M. Troost has substituted for Crookes's tube with success. A number of photographs were submitted to the examination of the members of the Académie des Sciences. This method is more easily applied in clinical observations. It is inexpensive, and when the apparatus is fixed on the region to be photographed, covered with a sheet of black paper, the patient can move about. M. Lannelongue has obtained from Professor Troost further details of the manner of preparing the crystals as described at length at the time, T. II, p. 983, of the *Comptes Rendus de l'Académie des Sciences.*

THE NEW TUBE.

Fig. 1 shows a section of the "focus" tube. The kathode plate K, is a concave disc of aluminium, which focuses the

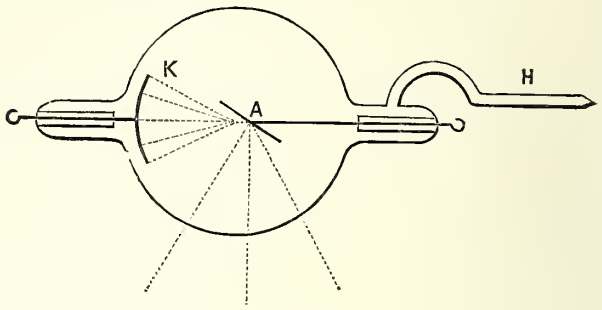


Fig. 1.

kathode rays at a point near the centre of the bulb. The anode plate, A, is a small piece of platinum foil placed at an angle a short distance beyond the focus of the kathode rays. Curiously enough, the cathode rays do not cross like rays of light at the focal point, but behave rather like a number of fluid jets coalescing at the focal point, and proceeding thence onwards as a solid parallel jet. The point where the rays impinge on the platinum still retains its small dimensions, though the plate is placed some distance beyond the focal point.

Platinum is known to be one of the most opaque substances for the kathode rays, and thus very little of the radiation passes through the platinum foil. The greatest part of the radiation is absorbed by the platinum, and given out as *x* rays from the luminous point by a kind of diffuse reflection. The anode plate, A, being set at an angle, the best part of the radiation is directed downwards through the sides of the bulb, where it can be conveniently utilised to produce the photograph in the usual way. The tube, H, through which the bulb is exhausted, is shaped so as to permit the tube to be fixed in a stand at the required height. The anode and kathode plates are connected to the terminals of the induction coil by platinum wire fused through the glass.

PROGRESS IN ENGLAND.

Accounts continue to come in of the successful application of the method by practitioners in this country. They are too numerous to mention in full, but show the extent to which the adoption of the process has already gone, and the advantages to be gained from its use.

THE CRYPTOSCOPE.

So much difficulty has been experienced in making the fluorescent screens for this instrument that as yet it is not capable of practical use. There is great difficulty, too, in maintaining them in working order, and when once prepared they do not last. Until these difficulties are overcome the instrument cannot be of any practical use. It is confidently hoped, however, that before long this most useful of the applications of Professor Roentgen's discovery will be in a condition fit for practical use.

SKIAGRAPHY IN DETERMINING THE POSITION OF FOREIGN BODIES IN THE LARYNX.

THE laryngologist is not infrequently called upon to give an opinion as to the presence or absence in the pharynx or larynx of a foreign body which has undoubtedly passed beyond the fauces. His examination is usually rendered difficult on account of the nervous state of the patient, abnormal sensibility of the parts, and excessive secretion of mucus, while his knowledge of the fact that a scratch or abrasion may give rise to misleading subjective impressions often renders a decided opinion impossible. At a later stage, when acute symptoms have subsided, a foreign body embedded in the soft tissues

may easily escape detection, and many instances have occurred in which, after repeated examination with the mirror, finger, or probang, the offending body has been unexpectedly expelled after a long interval. It is obvious that in doubtful cases—doubtful as to position as well as actual presence—the skiagraph and the cryptoscope should be of the greatest service. Thanks to the kindness of Mr. Rowland I have been able to show that the *x* rays are capable, as was to be expected, of penetrating the soft tissues of the neck and the cartilages of the larynx, and of casting a clear shadow of substances relatively opaque to these rays. With an exposure of four minutes a distinct picture was obtained of a small iron nail attached externally by means of strapping, the throat being presented in profile.

The outline of a fish-bone also was faintly indicated, and it seems not unlikely that after experiments with various exposures, those suitable for the particular substances of which foreign bodies in the throat are usually formed, may be determined. As suggested by Dr. Felix Semon it is not impossible that with short exposures the limits of a laryngeal neoplasm may be defined, and finally it seems more than likely that the cryptoscope may be found to excel the skiagraph as a diagnostic agent, and even prove an aid during intra-laryngeal operation.

During the last few days considerable improvement has been made in the technical details of the apparatus, and I hope before long to be in a position to record, in conjunction with Mr. Rowland, what will be of practical interest to the laryngologist.

Park Street, W. ERNEST WAGGETT.

THE DETECTION OF NEEDLES IN THE EXTREMITIES. NEEDLE IN HAND: REMOVAL.

The patient, a girl, aged 16, ran part of a needle into her right hand on May 12th, 1894. The point of entrance was on the outer side of the thenar eminence just below the first carpo-metacarpal joint, and the direction downwards and inwards. She had had pain in the palm of the hand ever since, and had been under treatment for this at various times, but the presence of the needle could never be demonstrated. She was first seen by me on February 25th; she had then been attending at the hospital for some weeks on account of the pain indefinitely referred to the centre of the palm; for this various anodynes had been applied. Neither by palpation nor by elicitation of pain could the presence of a needle be detected. A skiagraph was taken the same day by Professor Poynting, of Mason College, with an exposure of ten minutes with half-minute intervals, and the needle was seen lying obliquely in the second metacarpal interspace, one extremity apparently sticking into the periosteal tissues of the middle metacarpal bone, which in a second plate seemed slightly thickened at this point. Even now when the exact position was known the presence of the needle could not be detected by manipulation. On February 27th an incision was made on the dorsum of the hand between the second and third metacarpal bones, the interosseous muscles were separated, and a piece of needle an inch long was extracted, the eye of the needle being fixed in the periosteal tissues on the palmar side of the mid-metacarpal bone. The wound healed by first intention, and in a few days the hand was all right.

This case is an excellent illustration of the surgical use of skiagraphy. Without it the needle could not possibly have been removed, and the pain and disablement would have been permanent.

F. MARSH, F.R.C.S.,
Surgeon to the Queen's Hospital, Birmingham.

NEEDLE IN HAND: REMOVAL.

Mrs. E. B. came to the Queen's Hospital, Birmingham, on February 14th for the purpose of having a needle removed from her hand. Whilst scouring the floor a fortnight previously she ran a broken needle into her hand, and, although she attended at the hospital at the time, no signs of the needle could be detected except the entrance puncture on the ulnar border of the hand, about one inch above the little finger. On February 13th Dr. Hall-Edwards obtained a skiagram of the hand, which he kindly sent me as a guide. The position of the fragment of needle was clearly indicated, and it corresponded with the line of the superficial palmar arch. A small incision was made in the palm a short distance below (erect position) the line indicated, in order to avoid wounding the arch, and through the incision sinus forceps were inserted and passed backwards and upwards, beneath the palmar fascia and flexor tendons, when the needle was readily detected lying in close contact with the metacarpal bones, exactly in the position indicated by the skiagram. With a little manipulation the fragment was seized at the one end and withdrawn through the incision. The fragment measured one inch, and the remaining portion was found in the scouring cloth.

J. HAZELWOOD CLAYTON,
Casualty Surgeon, Queen's Hospital, Birmingham.

EFFECTS OF A LESION OF A PHALANGEAL JOINT.

The photograph shows the fore, middle, and ring fingers of the right hand of a boy, aged 16. When 8 years old an injury was inflicted on the terminal joint of the middle finger. At the present time the terminal phalanx cannot be voluntarily

4th 3rd. 2nd.

moved by the muscles acting on the finger. There is no osseous ankylosis. The phalanx can be flexed and extended mechanically. The exposure given was six minutes. The print is reversed as shown by the numbers on the print.

CHARLES A. KOHN, Ph.D., B.Sc.
University College, Liverpool.

The following points in the above case are clearly demonstrated by the photograph:

1. The middle finger has a normal proportion in length, as compared with the fore and ring fingers.
2. The length of the second phalanx of the middle finger is disproportionately increased.
3. The terminal phalanx of the middle finger is disproportionately short and broad.
4. The interval between the second and terminal phalanges of the middle finger is very much less than in the fore and ring fingers.

The case is of peculiar interest as showing: (1) The way in which a compensating elongation has occurred in the second phalanx by growth at its epiphysial end so as to bring the

middle finger to its normal length. (2) The result of the injury to the last phalangeal joint, including the absence of epiphysial growth, and an (apparently) excessive circumferential, periosteal, bone formation.

A. M. PATERSON, M.D.,
University College, Liverpool. Professor of Anatomy.

AN EXAMPLE OF THE VALUE OF THE NEW METHOD IN DIAGNOSIS.

A WOMAN consulted Dr. James Adam, of Hamilton, some time ago with the following history: Four years ago a needle passed into the tissues near the wrist-joint, but no great inconvenience was experienced until one year ago, when the middle finger began to swell at the point and apparently without any cause. This increased until there was stiffness of the ultimate joint of the finger; then pain and tenderness began to be felt particularly at a spot on the side of the finger on the palmar aspect and near the nail. The patient was under the impression that the needle was there, and came seeking relief. Dr. Adam sent the case to Dr. Macintyre, who photographed the hand, but found no needle in it, although there was distinct evidence of irritation of the ultimate phalanx. Dr. Adam and Dr. Macintyre were quite of opinion that it was periostitis from a totally different although unknown source. A second photograph was taken of the forearm, when a distinct image of the needle was got about an inch and a-half above and to the inside of the styloid process of the ulna.

The interesting point in this case, of course, is the difficulty which would have been experienced in finding the needle without the new art. With such a history as above mentioned, and the patient seeking relief, the surgeon might have been tempted to open the finger near the point where the patient herself expected the needle to come through. The experiment has revealed two distinct and different pathological conditions: one causing discomfort, and the other, the needle, evidently causing none.

JOHN MACINTYRE, M.B., F.R.S.E.,
Glasgow.
JAMES ADAM, M.A., M.B.,
Hamilton.

EXPERIMENTAL OBSERVATIONS ON THE DEAD SUBJECT.

PERHAPS an account of the following experiment with the new photography may interest the readers of the BRITISH MEDICAL JOURNAL. It shows that a fragment of needle embedded under the bone will show clearly in a skiagraph. The skiagraph was taken by Professor Wertheimer, Principal of the Merchant Venturers' Technical College.

I tried to pass a fragment of needle through the palmar aspect of the last joint of the great toe in an amputated foot. The fragment became so deeply and firmly embedded that I could not feel any portion of it, nor could another medical man, who also examined the foot. The photograph, taken by Professor Wertheimer, with three-quarters of an hour's exposure, showed the needle clearly and also several other foreign bodies embedded in the foot. On dissection of the foot afterwards I found the needle had just missed the joint, and had passed through the inner corner of the distal end of the first phalanx, and onwards beneath the bone, leaving only a small portion embedded within the phalanx. The skiagraph was taken with the dorsal aspect of the foot uppermost, so that the needle lay completely under cover of the overlying phalanx. This is of great interest, and shows that the shadow of the bone does not obscure that of the needle. In order to ascertain the relative position of the needle and bone, two skiagraphs would have to be taken, one with the dorsal surface uppermost and one with the plantar surface uppermost. If the one with the dorsal surface uppermost gave a darker shadow than the other we should have an indication that in this position the needle was nearest the plate, for the shadow is darker the nearer the body is to the plate, as with light shadows, and therefore on the plantar aspect. If the needle shadow were equally dark in both positions, then the needle must lie exactly midway between the dorsal and plantar aspects.

CHARLES A. MORTON, F.R.C.S.,
Clifton. Surgeon to the Bristol General Hospital.

EXAMINATION OF A MUMMY.

The following note appears in the *Neue Freie Presse* of Vienna: At the initiative of Dr. Dedekino, custodian of the Egyptian section of the Artistic-Historieal Museum of Vienna, an experiment has been made in photographing the interior, by the aid of Roeutgen rays, of an ancient hitherto unopened Egyptiau mummy. This mummy, which has externally the form of a human eorpse, was considered to be a "eolleetive" mummy of the old Egyptians who worshipped the ibis, but the view had not been proved, and as it was unique in its kind, it was uot desirable to unswathe it, but the contents might be proved with the Roentgen rays. The mummy was therefore, with the permission of Count Trauttmansdorff, brought into the photo-ehemieal laboratory of the iustitute, where the part corresponding to the human head and shoulders was illuminated with the Roentgen rays. The negative and prints showed elearly the outlines of kuuekles of birds, and that it eontained uo human remains. In this manner the contents of the mummy were proved in a manner which leaves no doubt of its being a so-called "ibis mummy," and the whole process shows elearly the utility of the new discovery for similar purposes.

FACTORY LEGISLATION FOR 1895, AND THE MEDICAL PROFESSION.

A PERUSAL of the excellent special reports of the Factory and Workshop Acts, prepared by the Medical Officer of Health and the City Engineer of Bristol for the guidance of the Sanitary Committee of that city, gives us the opportunity of drawing attention to what Parliament has done within the last few years to improve the condition of factory labour in this country. It was in the latter half of last century that England, fast outdistancing her Continental neighbours as a producing power, became able to meet the increasing demands made upon her cotton and woollen fabrics by the improvements in spinning introduced by Thomas Hayes and Richard Arkwright. Although at this period the motor power employed in mills was water, yet factories of considerable size were already in existence, and large numbers of human beings were daily massed within their walls. The life of these in many instances was one lengthened day of almost abject servitude. The physical hardships they had to encounter are now a matter of history, yet they did not altogether escape the attention of the Government of that period. The Factory Acts are the outcome of the labours of such men as Sir Robert Peel, Owen, Oastley, and Lord Shaftesbury (then Lord Ashley), and they are the necessary consequences of the great stimulus given to our industries by the introduction of steam as the motor power. We hear a good deal from time to time about "paternal and grandmotherly legislation," but it is admitted on all sides that the care of a State for the health of its workpeople is not the least important of its duties.

At the beginning of this century the necessity for State interference was only too apparent. The hours of toil were unduly protracted, and the conditions of labour for children of tender years and women such as raise even now a feeling of shame when they are detailed to us. It was to meet these and diminish concomitant evils that the first Factory Act was passed in 1802 and that subsequent Parliaments have passed additional Acts. The Factory and Workshop Acts of 1878, 1891, and 1895 are instances of the efforts put forth by successive Governments to deal with evils that have arisen under the influence of growing capital, increasing production, and keener competition. The assertion of State authority over individual freedom suits all of us best when it is graduated. It is to these circumstances and the exigencies of political parties in this country that must be attributed the number of Factory Acts at present in existence.

In our review of this subject it is unnecessary to go further back than the year 1878, when an Act was passed which allowed inspectors of factories to complain, but did not give them the power to enforce. The placing of workshops under regulations different to those applied to factories has doubtless, in many instances, tended to create difficulties. The primary distinction between a factory and a workshop is that in a factory steam, water, or other mechanical power is used to move machinery employed in preparing, manufacturing, or finishing, whereas in a workshop no such mechanical power is employed. The Act of 1891 placed the sanitary condition of workshops under the local authority, and it

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[Report to the British Medical Journal.]

By SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

[*With Double-page Illustration.*]

VIII.

Application of the Method to the Trunk.

The possibility of skiagraphing the deep visceral region of the body is well exemplified in the full-sized skiagraph of the skeleton of an infant reproduced in the plate issued with this number of the British Medical Journal, which marks a further step in the application of this new resource of medical science. Although no disease is present in the body of the child, it is none the less interesting from a scientific and medical point of view as being the first step towards the application of the method to the diagnosis of spinal and other deep affections. This skiagraph was taken in fourteen minutes, and the age of the child was three months. The tube employed was the new foeus tube, and it was placed some 8 inches from the surface of the body so as to obtain sufficient spreading to cover the plate. It is interesting to observe that the positions of some of the soft organs are indicated; thus the heart and lungs are clearly silhouetted, and curiously enough the coils of intestine; a clear space above them is evidently that occupied by the stomach.

Mr. William Anderson, F.R.C.S., Professor of Anatomy in the Royal Academy, and Lecturer on Anatomy at St. Thomas's Hospital, to whom an early proof of the plate has been submitted, writes as follows: "Mr. Rowland is to be congratulated warmly upon his success. The skiagraph is admirable, and opens up a world of speculation as to the utility of the process in the medicine and surgery of the future. The most noticeable features are the clear definition of the ossific centres in the vertebræ, the sharp line of the diaphyses where it touches the epiphysial line, the comparative transparency of the air-containing viscera, the lungs, etc., and the dimly shown outline of the liver and heart. It is curious that the iliac crest does not throw a good shadow. The transpareney of the bone shadow itself is well exemplified in the crossing of the radius and ulna."

As I have received so many applications for copies of the photographs which have been reproduced in these reports, I have placed all the negatives with the London Stereoscopic Company, from whom photographs may be obtained.

Detection of a Coin lodged in the Intestine.

In another case I have been able to obtain a negative of the pelvis, vertebral column, and lower part of the thorax of a much older child. The case will be published in full at a later period. The child, aged 6 years, swallowed a halfpenny in November last; since that time she has had constant symptoms pointing to the retention of the coin. The skiagraph showed the halfpenny lying on the right iliac bone; it had evidently lodged at the ileo-cæeal valve.

Skiagraph of the Elbow-Joint: Subluxation of Radius.

The following report is from Dr. J. D. Cree (W. Hampstead): The patient, H., a thin boy with exceptionally extensible joints, is now nearly 13 years of age. Two years and a-half ago, whilst climbing a tree, he fell and injured his right elbow-joint. He was not seen till several hours after the aeeident, when the swelling prevented diagnosis. After this swelling had somewhat subsided a dislocation of both bones backwards was diseovered, whieh was reduced. No further injury was reeognised. Patient never completely regained full flexion or extension of the joint, although nearly so, and as a proof of its flexibility I may mention that a year after the aceident H. gained a medal at his school for gymnastics.

A month ago my attention was called to H., as it was noticed that his elbow-joint was not so freely movable as formerly, and that he was acquiring the habit of using his left hand on oeeasions, sueh as in drinking, when before he would have used his right. On examination I found pronation and supination normal, but flexion and extension greatly diminished from what was possible a year ago. There was no marked tenderness to be made out. The head of the radius seemed to be enlarged and partially displaced outwards. By measurements I found the distances between the external and internal eondyles, and between the olecranon and the outside of the head of the radius, were increased when compared with the left elbow.

Thinking this to be a case in which Roentgen's *x* rays might be a great aid to diagnosis, and prove or disprove an early tuberculous lesion or some injury to the epiphysis, I brought H. under the notiee of Mr. Sydney Rowland, who very kindly made three skiagraphs for me.

1. Right elbow-joint, extended as much as possible, seen from before backwards.

2. Left elbow-joint, semiflexed, seen from before backwards. (In this my attempt to obtain a shadow, thrown with an identical angle to that from the bones of the right arm, has failed.)

3. The right elbow-joint, flexed as much as possible, seen from without inwards.

By comparing the two skiagraphs the outward subluxation of the head of the right radius is at once apparent. Beyond this there is a general enlargement of all the bones forming the elbow-joint; but this may be accounted for in part by parallax—the two arms were not in an identical posture, nor was the Crookes's tube in the same relative position to each arm during the exposure. This is shown best in the heads of the radii—in the left, the epiphysis is seen end on, whilst in the right an oblique view is obtained.

From these skiagraphs I think that any diagnosis beyond that there is a subluxation of the head of the radius would be hypothetieal.

The skiagraph of the left and uninjured elbow is interesting, as by it from the epiphysial nuclei of the lower end of the humerus the age of the patient can be verified. The nucleus for the trochlea, whieh appears in the 11th or 12th year, is small but distinct, whilst that for the external condyle, whieh should develop in the 13th or 14th year, is absent.

THE DETECTION OF NEEDLES IN THE EXTREMITIES.

Localisation and Extraction of Needle deeply seated in the Foot.

The following ease furnishes a good illustration of the value of the new photography in diagnosis and in determining the position of foreign bodies when too deeply seated to be ascertained definitely by the usual methods.

On the night of November 8th, 1895, about 11 P.M., a lady who was staying with some friends, after retiring to bed, got up and walked across her room for some cough lozenges that were on the dressing table. In doing so she eaught her foot against a rug, and felt an aeute pain in the sole of her foot close to the ball of the big toe. She struck a light, and after searehing on the floor found a piece of needle, but could not find the other fragment. There was blood oozing from a puneture in her foot, and she suspected the missing pieee was left in it. About 2 A.M. she awoke with excrueiating pain in the big toe joint, and could not sleep again. Next morning she consulted a surgeon, who, after examining the foot carefully, expressed an opinion that there was no needle in the foot, and that she was suffering from gout. She was treated for this complaint for over three weeks, without mueh benefit so far as pain and swelling went, and returned home.

I was asked to see her the following day, and after listening to the history eame to the conclusion that there was a picee of needle in the ball of the big toe, but it was not possible to feel it by the most careful palpation. I explained to her that it would be rash treatment to cut down and explore for it without having a definite idea of its position, and pursued a soothing and expectant treatment. When a few weeks ago the new photography astonished the world, I at onee deeided to have the foot photographed. This was successfully done by Dr. Hall Edwards, of Birmingham, and plainly showed the needle lying obliquely against the metatarso-phalangeal joint of the big toe. On this I proceeded to operate. The position of the needle being clearly defined in the photograph, there was no diffieulty in marking its site on the skin by means of

a pencil. A puncture was then made with a tenotomy knife transverse to the direction of the needle, when the edge of the knife struck it at once. An incision was made in the line of the needle, which was very deep, owing to swelling and rather fleshy foot and lying against the bone. It was then seized with a dressing forceps, and, not being possible to take it out through the wound, one end was made to project against the web of the foot between the big and next toe; a small incision was made over it, and with some force it was drawn out. After being in four and a-half months it had become very firmly fixed and oxidised. Its length was just under an inch.

Ashby-de-la-Zouch. CHAS. R. WILLIAMS, M.B., C.M.EDIN.

DETERMINATION OF THE POSITION OF BROKEN NEEDLES IN THE HAND.

ON February 27th A. E. came to me with the history of having a piece of needle in her hand. Some months before she had dropped a needle on the carpet, and in feeling for it the eye end ran in her hand and broke off, leaving about half an inch in it, but as it could not be seen it was left, in the hope that it would work to the surface. She had very little pain, except in grasping anything.

Messrs. Newton and Co., of Fleet Street, kindly photographed the case for me with their new focus tube, and the result is very interesting, as showing the great improvements that have already been made; exposure, two minutes. The piece of needle was situated right in front of the third metacarpal bone diagonally from the surface to the bone. The hand was placed with the palmar aspect downwards, so that the *x* rays had to penetrate the bone before reaching the needle, which they did most perfectly.

Another point of interest is that the structure of the bone can be readily seen, and the nails are also easily seen. The position being so clearly shown, I made an incision only three-eighths of an inch in length, and with a small pair of forceps seized the end of the needle and drew it out.

Crouch End. AUG. C. DOVE, M.D.

ON March 16th Professor Barrett, assisted by Mr. Jefcote, at the Royal College of Science, Dublin, took skiagraphs of a woman, a patient of mine, who had a needle in her hand for the past two years and a-half. She consented to its removal when its position was defined, and I accordingly removed it with comparative ease from the hand, making the incision parallel to the little finger metacarpal bone, and going under the muscles of the little finger. The skiagraph had shown that it was on the palmar side of the hand. The history is shortly as follows:

J. E., a housemaid, when dusting a press two years and a-half ago, felt a needle run into her hand; the sharp end broke off, and the eye end run into the muscles of the hypothenar eminence. Under cocaine I at the time endeavoured to find the fragment in the hand, but failed to do so. I poulticed and stuped the hand in hopes the needle would come out through the enlarged wound, but it did not. The wound healed quickly, and the woman only complained of shooting pains up the arm and into the little and ring fingers, and at times cramps in the muscles of the hand, causing her to cry out and drop anything she was holding. For about the past twelve months these pains and cramps were less frequent, may be once or twice a month, until recently, when they became more frequent. The pain latterly was referred always to the base of the fingers proper on the palmar surface, or the wrist proper (also palmar surface), or up the arm, but near to where the skiagraph pointed out the needle to be situated, and where it was accordingly found at the operation. I was assisted at the operation by my colleague Mr. Swan, and Mr. E. Hamilton and Mr. Bennett, Consulting Surgeon to the hospital, were also present; Dr. W. Hamilton gave the anæsthetic, and Messrs. Burke and Piers-Smith (my dressers) also gave able assistance. RICHARD BOLTON M'CAUSLAND,
Sen. Mod. T.C.D., M.D., F.R.C.S.I.,

Dublin. Surgeon to Steevens Hospital.

NEEDLE EMBEDDED IN HAND; EXTRACTION AFTER LOCALISATION BY MEANS OF THE ROENTGEN RAYS.

I SEND a note of this case, not because of any intrinsic value that the rays had in facilitating the removal of the needle, for it could be quite plainly felt, but on account of the excellence of the skiagraph, for which I am indebted to the kindness of Mr. H. Jackson, of the Chemical Laboratory. It shows that the point of the needle is embedded on the anterior surface of the base of the fifth metacarpal bone—a condition verified at the time of removal. Mr. Jackson, rotating the hand between the tube and his luminous screen, enabled us to see that the needle had run in front of the bones, and not behind—a point that could not otherwise be made out, as the end of the needle could be felt in the middle of the inner border of the hand, and it was not possible to say into which side, palmar or dorsal, of the hand the point had gone. The patient, who was intensely interested in the proceedings, was sent me by Dr. T. D. Manning, of Reigate.

F. F. BURGHARD, M.S.Lond., F.R.C.S.,
Assistant Surgeon to King's College Hospital.

NEEDLE IN HAND: REMOVAL.

L. D., a dressmaker, some weeks ago ran a portion of a needle into the thenar eminence of her right hand. When she came to my surgery next day there was no trace of the needle to be found; since then she has complained of a large amount of pain along the side of the forefinger. On Tuesday last, by the kindness of Mr. C. M. Dorman, we took a skiagraph by the new process. The needle showed plainly. Taking the metacarpal bone as a guide, we cut down parallel with the bone and removed the needle.

Patricroft. W. M. HAMILTON, M.D.

WANTED—A NAME.

DR. DAVID WALSH (Temple, E.C.) writes: Your interesting editorial of March 14th drew attention to the want of a comely and convenient term for what is now known as "the new photography. Perhaps I may venture to suggest "shadowtype" or "shade picture" as possible names. The word "shade print," again, could be made to cover a good deal of the ground. At any rate, the use of such expressions as "shadow printing" or "shade printing" a fracture, or "a needle was shade-printed in such and such a position" would be less barbarous than many of the cumbrous periphrases now springing into vogue.

M.D. T. C. D. suggests1 "rötography" or "rotography" as a name for the new process of pourtraying the unseen. The proposed term has the advantage that it is easy to pronounce, and implies no theory as to the nature of the process; indeed, as far as we can see, it is open only to one objection, but that appears to us to be fatal. To place in the hands of the habitual punster such a weapon of offence as "*rot*-ography," would be to make a serious addition to the minor miseries of life.

THE BATTLE OF THE CLUBS.

PENDLETON PROVIDENT DISPENSARY.

THE Honorary Secretary of the medical staff of this institution is of opinion that justice has not been done to them in our comments. We may observe that it has never been implied that "no reform at all" has taken place at Pendleton; it was only suggested that the reform has not been sufficient. Although it is constantly reiterated that this institution "has departed from the rules which govern the Manchester and Salford Provident Dispensaries' Association," the Pendleton Provident Dispensary appears still to figure as one of the Branches of that Association, and it appears to be understood that out of its own reserves it supplements the finances of other Branches. So long, therefore, as so intimate a connection appears to be maintained between this institution and the Manchester and Salford Dispensary Association, it will be impossible to exonerate the former from all the faults of the latter. If this be a misstatement it has not, so far as we are aware, been publicly contradicted, nor has our correspondent produced any evidence to refute it. If, as a matter of fact, a series of provident dispensaries show profits in proportion to the general prosperity of the population in the district where they are established, that is to say, if where the people are mostly well-to-do they can form a reserve fund but where they are poor the result is a deficit, it can hardly be argued that such a fact is not relevant, as calling in question the efficiency of the wage limit practised at all these Branches. It is stated, also, that the supporters of the Pendleton Branch are derived chiefly from the well-to-do classes, while its reserve fund (£430 5s.) would appear to be the largest of all the Branches; so that it is not altogether irrelevant for it to show either that the alleged fact is erroneous, or that it has no relation to its own material prosperity.

matter might be different; but as it is we constantly find ourselves called upon by the law of the land to reveal what has been told us in the deepest confidence, not for grave reasons of State, but because some blackguard who has driven his wife to evil courses chooses to ask for a divorce; and if, under such circumstances, we are to admit that for such a paltry reason the law can demand that the seal of secrecy shall be broken, and if such a demand is to be looked upon and admitted as a "higher claim," who can deny the still higher claim of parental duty.

The fact would seem to be that the law after all has a certain relation to public opinion, and that public opinion is influenced by the view taken by the law. In England, then, where the law frequently insists on the violation of the sacredness of professional confidences between doctor and patient, such confidence cannot, as in other countries, be held inviolate; and many other reasons besides the dictum of a judge must be admitted as absolving one from the operation of a rule of secrecy which those of us who have either not thought much on the subject, or have not been awakened by rude experience, have been perhaps too apt to look upon as universally binding on every member of the medical profession.—I am, etc.,

March 30th. S. C. S.

Sir,—As a general practitioner of medicine for forty-five years, and quite independent of the College of Physicians, I have ever felt strongly and adhered rigidly to the "binding duty of medical secrecy." In medico-legal cases I have always declined to open my mouth on either side till put into the box; and as the lawyers could not know what I should then say they seldom troubled me to go to the court, and thus I was enabled to attend to my own business instead of being bored with other people's and legal quibbles. Young practitioners may be glad of this hint, by which they will avoid great waste of time dangling about the courts, and be free to look after their patients at home with regularity.—I am, etc.,

Worthing, March 30th. John J. Merriman.

RETAINED PLACENTA.

Sir,—In your report of this trial, Sir John Williams is stated to have said: "In the case of a woman with retained placenta, he would expect to find frequent and constant bleeding. Her periods would be irregular. He would not expect to find a period where there would be no menstruation."

When I was on the staff at St. Bartholomew's Hospital, a patient came under my charge for sudden and profuse uterine hæmorrhage. She had "seen nothing," she stated, since eight months previously, when she had passed a fœtus between the third and fourth month of pregnancy. I removed what I believed to be the entire placenta, which had been retained, and remained completely attached till then. Its appearance differed widely from that of a fresh placenta, and accorded with the changes described by those who gave evidence in the trial on Dr. Playfair's behalf. This uncommon case, it seems to me, should be mentioned, as showing that the whole placenta may be retained for as long a period as eight months, causing arrest of the catamenial function.—I am, etc.,

Grosvenor Street, W., March 31st. Clement Godson.

PROFESSOR VIRCHOW ON MEDICAL EDUCATION.

In a debate on matters relating to medicine in the Prussian diet, an interesting speech on medical education was delivered by Professor Virchow. He said that the education of the students was of paramount importance—not their examination, on which, in his opinion, too much stress was at present laid. Before the era of hospitals the medical teachers were simply practitioners, who took their pupils with them when visiting their patients. This practical teaching could only be carried through in towns, and its trace might still be found in the word policlinic, which was not derived from *πολὺς*, much, but from *πόλις*, town: town-clinic, ambulatory clinic. The speaker said that, at the time of his own studies, policlinics were few and unimportant; the stationary hospitals enjoying almost exclusive consideration. He was glad to say that lately the necessity of establishing more and more policlinics had been recognised; they were of the greatest use in preparing the student for general practice. He next drew attention to a weak point in the Prussian examination system, the drawing of lots. In each branch the important points are formulated as questions, and these questions published beforehand. At the examination the students draw lots for their questions, and the examiners may not ask them any others. This, he said, was the worst arrangement possible, and was a direct incitement to cramming. Speaking of the distribution of subjects in the higher examinations, he expressed a fear that undue prominence was given to anatomy and physiology. "Anatomy and physiology," he said, "are necessary studies; no one has spoken more strongly on the subject than I have; but even here there must be a certain limit—the limit comes at the transition from anatomy and physiology to true medical reflection." In answer to a remark of the Government representative, Professor Virchow further said: "After all internal medicine is the same intrinsically as external medicine; they both grow on the same stem. Only, inasmuch as the one applies itself to visible, the other to invisible organs, they have developed slightly divergent methods of treatment, which, however 'au fond,' mean the same. Medical science is a unity, though it develops and throws off different branches." Further, he said, "Pathology and pharmacology are the two fundamental disciplines; upon these two every practitioner must build up his medical convictions." And, again, "In our days the domain of internal medicine has been narrowed more and more through the powerful and fully-justified raids of surgery. Surgery has done great things, and its achievements have all grown out of the experiences based on general pathology and formulated anew. I cannot agree with the Government view of the central importance of internal medicine. I am of opinion that the normal course should be to consider the scientific branches—anatomy and physiology—as indeed fundamental; but to take pathology and pharmacology as the central point of instruction, which should be specially dwelt on; while practical studies should be carried on alike in the hospital and in the policlinic."

The number of hospital cases of small-pox in Gloucester on March 26th was 369 with 90 deaths. Of the 90 deaths, 74 were those of unvaccinated persons, and the remaining 16 had only been vaccinated in infancy.

Medico-Psychological Association.—The spring meeting of the South-Western Division of this Assseiation will be held at Bailbrook House, Bath, at 2.30 P.M. on Tuesday, April 14th. The Report of the Committee on Criminal Responsibility will be considered. A discussion on the Nursing Staff in Asylums will be opened by Dr. P. W. MacDonald. Dr. R. S. Stewart will read notes on the Special Reports and Certificates required by Section xxxviii of the Lunacy Act, 1890, and Section vii of the Act of 1891.

Sunburn and Reflected Solar Light.—At a recent meeting of the Camera Club Dr. Bowles gave an address on sunburn, snowburn, snow blindness, sunstroke, and sun fever, and contended that they are not due to the heat rays contained in sunlight, but to the violet or ultra-violet rays which undergo some unexplained change during or after reflection from snow, water, mist, etc., and then behave very like *x* rays in their power of penetrating deeply into animal tissues. By them the skin is bronzed and the wood of the Swiss *châlets* rendered brown and often carbonised for inches below the surface. In one bad case of sunburn in the Alps he found the skin swollen, red, and deeply pitted, with a minute freckle at the bottom of each pit. The freckle had clearly stopped the action of the rays which did the mischief to the tissues lying beneath. From this and other observations he came to the conclusion that coloured screens or pigments, particularly orange, red, or brown umber a little deeper than flesh colour, would be quite efficacious in preventing sunburn. Experience had fully confirmed the correctness of the inference.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[Report to the British Medical Journal.]

By SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

IX.

THE CRYPTOSCOPE.

The report that Professor Salvioni, of Perugia, had found it possible to convert Roentgen's x rays into ordinary light rays has received abundant confirmation, but none so absolute as the actual production of the instrument by an English firm of opticians.

Professor Roentgen's Original Experiment.

It will be remembered that the original experiment of Professor Roentgen which led to his discovery of the x rays consisted in an observation that paper coated with barium platino-cyanide lit up with brilliant fluorescence if brought within the sphere of influence of an excited Crookes's tube covered with black paper. From this discovery Roentgen argued the existence of certain rays which were able to traverse black paper, and by inference other opaque substances, as evidenced by their affecting the barium platino-cyanide, which deduction has been so strikingly substantiated by the vast amount of work that has been done in the field of the new photography. And in no direction has the discovery borne such practical and important fruit as in its application to medicine and surgery.

Some few weeks after the discovery of Roentgen, Professor Salvioni, of Perugia, announced that he had (apparently independently) arrived at this property of the platino-cyanides of fluorescing under the influence of x rays, and had turned it to practical account by the construction of an instrument called a cryptoscope.

Salvioni's cryptoscope consisted simply of a surface of some substance opaque to light, but capable of transmitting the x rays, coated thickly with the fluorescent salt—in his case barium platino-cyanide. Since this announcement reached England—now some six weeks ago—the same fact has been reported over and over again by several workers. It is curious to note the zeal with which the newspaper reporter has seized on these successive announcements and magnified them into fresh discoveries. This craving for exciting news has been at no time better exemplified than in the extended and "booming" reports that were circulated as a result of Edison's simple telegram to Lord Kelvin. The facts of the case are, that very many substances behave as do the platino-cyanides, and that Edison simply telegraphed that he had found tungstate of soda to fluoresce more brilliantly than salts that had hitherto been tried. Whether this is so or not remains to be proved in this country. But great as has been the success of observers in other countries, it has remained for England to produce the instrument in its perfected and simplified form, and for Mr. Herbert Jackson, of King's College, to fix on the particular salt which give the best results—results besides which all previous attempts are cast into the shade. The salt he employs is the platino-cyanide of potassium.

Construction of the Instrument.

In its latest and most perfect form the instrument simply consists of a circular sheet of black cardboard covered on one side with the salt above named, and protected by a glass plate. To prepare the salt for spreading on the card so as to ensure the best results is a work of considerable difficulty, and it is only within the last few days that these difficulties have been overcome. The method that has been found to answer best is as follows:—A sufficiency of the salt is ground to the finest powder in an agate mortar. The finely divided substance is then made into a thick cream with enough gum arabic to produce a mass of the requisite viscidity to adhere to the card. On the card the mass is then spread in as even a layer as possible, and the instrument is complete.

Explanation of Effect Produced.

When such a prepared screen is placed in the path of the x rays, it is seen to light up with a vivid green light. Given that some object capable of obstructing the rays is placed between the source of these rays and the screen, it is obvious that a dark shadow of the object is cast on the screen, and is seen as such by the eye, the screen having converted x rays into light rays, as evidenced by its fluorescence.

On the accompanying diagram the effect is rendered clear.

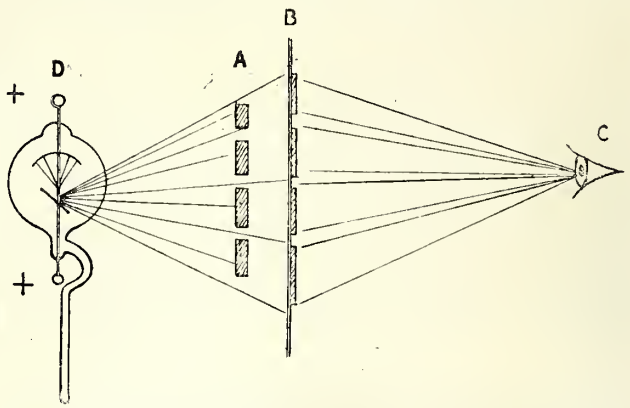


Diagram of action of cystoscope: D, focus tube; A, body casting shadow on B, fluorescent screen which is seen by eye at C.

The object casting the shadow is, for simplicity's sake, represented on a perforated sheet, but the same effect would obviously be produced when the object is the human hand, for example. In this case the flesh, being transparent, casts no shadow, while the bones, being relatively opaque, cast a definite and clear image.

It must not be forgotten that the success of this instrument depends on having at command a definite and minute point of origin for the x rays. Such a point is furnished at the place where the kathode rays from the concave electrode of the focus tube strike the platinum plate. Thus it is largely owing to the invention of this tube that the apparatus has succeeded so well in this country.

What it can Do.

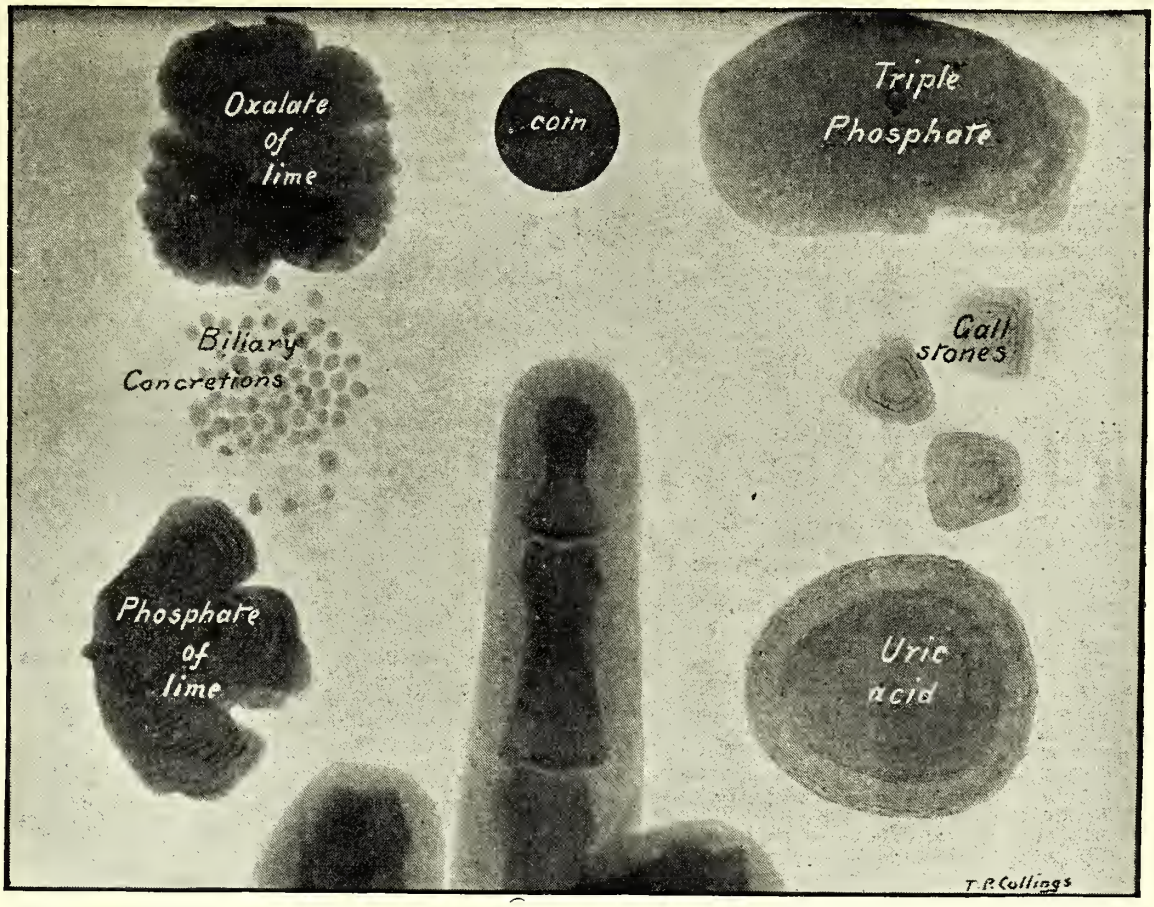
Such being the instrument and its mode of aetion, it only remains to describe shortly what are its use and possible developments. For rapid and easy diagnostic purposes in medicine and surgery it will certainly take the place of the far more cumbrous photographic method. The object is seen at once, and without the trouble or skill required for developing sensitive plates. Thus the process is reduced to its simplest elements.

Thanks to Messrs. Newton and Co. I have been enabled to test practically the capabilities of the new instrument. With it any of the bones of the extremities can be seen with marvellous clearness. This alone holds out sufficient prospect of practical utility, and the prospect is greatly enhanced by the fact that it is fairly easy to "see through" the larynx and diagnose the position of a foreign body therein. When the instrument is working at its best it is just possible to make out the outline of the vertebral column looking through the entire thickness of the abdominal wall; but results in this direction are as yet too uncertain to prophesy any special value to new development in this direction. Seeing that it is possible to examine the bones and joints of the extremities with facility by its aid, however, this alone is sufficient guarantee of its practical utility.

Possibilities.

It is almost impossible, therefore, considering the early and undeveloped stage which the new process must be considered to have reached, to predict what will be the ultimate outcome of this invention. It is not too much to say, however, that it will probably, to a large extent, in the near future replace all other methods in the diagnosis of bone diseases.

A number of cases have been investigated and diagnosed by our Commissioner during the week, illustrating the practical uses of the new photography and of the cryptoscope



The Relative Opacity of Calculi.

but as they are for the most part similar to others which have already been published and illustrated in the columns of the British Medical Journal, it is unnecessary to refer to them in detail. Arrangements are in course by the London Stereoscopic Society, Regent Street, for a skiascopic room, where such cases can be received when desired, under the supervision of Mr. Sydney Rowland.

The Relative Opacity of Calculi.

Mr. John T. Leon, M.R.C.S., of St. Mary's Hospital, London, sends us a skiagraph which is here reproduced to illustrate the relative opacity of various substances. The point of special interest which is brought out is the great transparency of gall stones to the *x* rays. This was already known, but it is made very conspicuous by Mr. Leon's skiagraph. The skiagraph appears to show also that a uric acid calculus is more transparent than other vesical calculi, among which there appears to be little difference. These calculi were approximately of the same thickness, and a finger and a coin are shown on the same plate for purposes of comparison. The exposure was three minutes, and the tube used was one of Newton's "focus" tubes.

DEMONSTRATION BY PROFESSOR SILVANUS THOMPSON AT THE CLINICAL SOCIETY.

An overflowing audience assembled at 20, Hanover Square, on Monday evening to witness a demonstration before the Clinical Society of the method of obtaining skiagraphs by Roentgen's rays, which was given by Professor Silvanus Thompson, F.R.S.

The President of the Society (Dr. T. Buzzard), in introducing the lecturer, remarked that physical science had during the last half century greatly assisted medicine and surgery both in the diagnosis and treatment of disease, but not one of its many discoveries had more seized upon the imagination than the development of electrical science now indelibly associated with Professor Roentgen's name, which appeared likely to lead to great advances in the treatment of diseased conditions. The public, however, must not overestimate those advantages, as they appeared inclined to do. In arranging for that meeting, the Council had decided that they should ask the highest authority possible to introduce the subject, and that they should devote a special evening to its consideration.

Professor Thompson said that what he had to show divided itself into two parts: (1) the actual process of obtaining photographs by the new method; (2) the theory of their production—under which he would describe the apparatus used, and show how it was used. The apparatus consisted of an electrical battery, a Ruhmkorff's coil capable of transmitting a spark 4 or 5 inches long, and a Crookes's tube, all properly connected. A gentleman with a portion of a fish hook imbedded in the terminal phalanx of one finger for the past year, and who had had other fingers of the same hand crushed in a mill some years ago, next had his hand photographed. The exposure was of a minute's duration, the dry plate being enveloped in a case of black cardboard. The plate was removed to be developed in another room, and eventually proved excellent, exhibiting the piece of the fish-hook in position, and the other deformed phalanges. Professor Thompson explained meanwhile that a sheet of aluminium placed above or below the hand—that is, between the Crookes's tube and the dry plate—would have made no difference in the result, except that five seconds longer exposure might have been necessary, as the aluminium choked off some of the rays.

The lecturer next described the investigations in regard to electrical discharges in vacuum tubes which have been under-

taken for many years by experimenters, especially by Mr. Crookes; and showed the very varying behaviour of such a spark when transmitted through a tube, first open, then closed, and exhausted by an air pump until the attenuation of the air became almost as great as in a Crookes's tube, and finally slowly refilled with air. He remarked that if the exhaustion were made absolute, the tube would not act, because, in the complete absence of particles of air, the spark refused to pass into it. The tube must, however, be very highly though not completely exhausted. He described the focus tube with a kathode concave disc of aluminium, and an anode plate of platinum, from which lattter the electric emanations were reflected to the exterior of the tube.

These Roentgen rays could be deflected to one side by a magnet, but nothing yet known will focus them. These rays are not light, nor ultra-violet light, for the latter absolutely refuses to go through aluminium. Various salts were shown to be luminous when light, or ultra-violet light, played upon them, and the phenomena of phosphorescence and fluorescence were demonstrated by many beautiful experiments. Various photographs of hands, feet, etc., taken by the Roentgen rays were exhibited on a screen; and the leg of a man with a small leaden shot in his calf was photographed by the *x* rays, but the bullet was not visible in the resultant picture. Finally the cryptoscope was explained, the lecturer remarking that the platino-cyanide of potassium was far more efficient as a paint on the screen than calcium tungstate, which had lately been highly recommended in America for the purpose.

A thoroughly good tube was required to enable the cryptoscope to act well. By means of this instrument the bones of the operator's hand and forearm, a coin and ring in a leather purse, the metallic surgical instruments in a wooden box, an iron magnet and other small shapes of metal in a block of wood 3 inches thick, and a pair of spectacles in their leathern case were all rendered perfectly visible by their shadows, whilst the flesh around the bones, the purse, box, block of wood, etc., were all rendered more or less transparent. Professor Thompson described a binocular cryptoscope, with which he hoped it might be possible to obtain two shadowgraphs, at slightly different angles, and thus see things in their proper relation to one another, and so determine the proper order of their superimposition. In reply to queries, he said that almost any dry plates would do for the photography, that the Roentgen rays could not be refracted, that glass was hardly at all transparent to them, and that in photographing through the trunk or any thick part of the body the dry plates should be placed next to the part to be photographed—for example, for gall stones the light should enter at the back and the plate be placed over the gall bladder.

A hearty vote of thanks, proposed by the Chairman and carried by acclamation, was accorded to Professor Thompson for his most interesting demonstration.

RECOGNITION OF SCRAP OF METAL NEAR ELBOW.

J. L., aged 18, was admitted into the Corbett Hospital at Stourbridge on March 18th, suffering from a traumatic aneurysm of the left brachial artery just above the inner condyle of the left humerus. The patient is employed at a large ironworks, and on March 4th, while holding a hammer on a wedge, a fellow workman struck it with another hammer; a piece of steel must have come off the head of one of the hammers and struck the patient on the arm, causing a free flow of blood. He was taken to Dr. R. Eagar, of Stourbridge, and attended to. On March 18th I saw him, at Dr. Eagar's request, and sent him up to the Corbett Hospital, where he was seen also by my colleague, Mr. D'Arcy Ellis. No steel could be detected by any of us. On March 19th I took the patient to Dr. Hall Edwards, of Birmingham, and under the Roentgen rays a piece of metal was discovered lying on the inner side of the condyle of the left humerus. I think this case is interesting as illustrating that the Roentgen ray will detect the presence of metallic bodies which would otherwise escape detection.

Stourbridge. H. HAMMOND SMITH.

WANTED, A NAME.

PAUL PRY writes: You want a name for Roentgen photographs. Why will not Xgraph do? It is short, better than any combination of Rot, and what is much to the point nowadays, a novel combination.

OBSTETRIC HOSPITALS AND TREATMENT BY MIDWIVES.

THE Liverpool Ladies' Charity, with which is incorporated the Lying-in Hospital, is an institution which has just celebrated its hundredth anniversary. The century during which it has existed has seen Liverpool advance from the status of a second-rate provincial town to that of the second city in the kingdom, and all that time the Ladies' Charity has steadily kept pace with the needs of the increasing population, carrying on quietly and unostentatiously a work whose value it is scarcely possible to estimate.

To maintain the honour and efficiency of such an institution might be almost regarded as a sacred trust by those to whose hands its government is assigned, and it is painful to have to record that the present Committee of Management have entered on a course of action with regard to the medical staff of the Lying-in Hospital which, if persisted in, will certainly detract from its value, and will probably before long lead to its extinction. The Ladies' Charity and the Lying-in Hospital—formerly independent organisations—have for some years been combined, and now form one charity under the same Committee of Management.

The work of the institution may be described as consisting of an outdoor and indoor department. For the purposes of the former the city is divided into ten districts. Each district is provided with trained midwives, and with an honorary medical officer, who has charge of the district, and is called upon by the midwives when they meet with cases requiring medical aid. The Lying-in-Hospital, the indoor department of the charity, is officered by three obstetric physicians, each of whom in turn takes active duty in the wards for a period of three months at a time.

The Committee of Management now propose to change the laws of the hospital in such a way, that the patients, when admitted, shall come under the sole care of the matron, and shall not be seen by the medical officer at all unless she sees fit to send for him. A philanthropy which would designedly withhold from poor women in their hour of need the skilled aid which competent medical men are able and willing to render unasked is difficult to comprehend. Surely it is in the interest of both patient and practitioner that the latter should be able to ascertain for himself, at the earliest possible moment, whether any special difficulties are likely to arise. It is worth noting that the Committee seem not to have had the courage to propose these alterations in the laws at the annual meeting, which was, as usual, held in the town hall, under the presidency of the Lord Mayor, but are about to bring them forward at a special meeting which will be presided over by the chairman, who is himself one of the promoters of the proposed changes. The consequence of what has occurred is that the whole medical staff, comprising the consulting members, the medical officers to the hospital, and the district medical officers, with three exceptions due to absence or illness, have handed in their resignation. It has always been among the best traditions of the medical profession that the sick should have free access to the physician without the intervention of nurse or any other person, and the invariable practice in hospitals is in no way at variance with this tradition, but the medical officer of a hospital is directly and personally responsible for the well-being of those who enter the wards, no less than in the case of his private patients.

The Committee of Management of the Lying-in Hospital now propose to abrogate this rule, and to place the patients, in the first instance, under the care of an unqualified person, with whom shall rest the decision as to whether they shall have the benefit of medical assistance or not. No conscientious practitioner can be expected to give countenance to any such proposal, and the medical staff have adopted the only proper course in resigning, and thus declaring effectually that they will be no parties to the scheme.

A DISCUSSION on the Factory and Workshops Acts and the powers and duties of sanitary authorities with regard to workshops will be opened by Dr. J. F. J. Sykes, M.O.H. St. Pancras, at the sessional meeting of the Sanitary Institute on April 15th.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[Report to the British Medical Journal.]

By SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

X.

The Recognition of Foreign Bodies in the Larynx.

Some weeks ago I stated that one of the possible uses for the new process would be in localising and discovering the nature of foreign bodies in the larynx. In conjunction with Dr. Ernest Waggett I have been steadily pursuing this line of work with the results that I think are satisfactory. It is now possible not only to skiagraph the foreign body, but by aid of the cryptoscope actually to see it, and, what is more important, by the aid of this latter instrument it is easy after a little practice to use extraction forceps or other instruments actually in sight during the operation, and thus to direct accurately the instrument to the body and ensure its being caught within its grasp. At the Laryngological Society on April 15th the following paper was read by Dr. Waggett, in which our methods are described in detail.

THE SKIAGRAPH AND CRYPTOSCOPE IN THE DIAGNOSIS AND TREATMENT OF FOREIGN BODIES IN AND ABOUT THE LARYNX.

In a letter published in the British Medical Journal of March 21st, I mentioned that Mr. Rowland and myself had been able to demonstrate that it was possible to obtain skiagraphs of foreign bodies in and about the larynx. In subsequent experiments made with a "focus" tube of known efficiency, we find that the best results are to be obtained by an exposure of five minutes, and by such exposures we have produced sharply-defined shadow pictures of coins and fish bones attached to the surface of the neck, as well as of the hyoid bone. The method we have adopted is to allow the patient to rest the head in a natural and comfortable position as he sits in an armchair, with a small-sized rapid sensitive plate, wrapped in light proof paper, bandaged closely to the side of the neck. A Crookes's tube, directing the rays transversely through the neck, is fixed 2 inches from the surface of the latter, the connecting wires being carefully insulated in glass tubes to prevent discharge to the shoulder.

Inasmuch as the cartilages of the larynx are transparent to the *x* rays, and afford no clear landmarks in the picture, we have constructed projection charts of the region, by reference to which the position of any given point may be determined with fair accuracy in spite of the distortion of the image due to the near proximity of the source of the rays. The side on which and the depth at which any opaque body lies may also be determined by taking a second skiagraph, directing the rays through the neck more or less antero-posteriorly. As one of the most important ends to be attained by this method is the proof of the non-existence in a particular situation of a foreign body alleged by the patient to be present, and of which ordinary examination reveals no sign, we have determined the relative opacities of a number of those bodies (coins, bones, glass, various buttons, etc.), which are likely to become accidentally lodged in the upper air and food passages. Exclusion will not be satisfactory and final in the case of some small and but slightly opaque bodies, but in the majority of instances it will be possible to prove definitely the absence or presence of a foreign body, when after trial with a series of various exposures a picture is produced in which the more transparent tissues of the neck are represented by a deposit on the negative of a density equal to that of the standard. If this density is obtained after full development, and no evidence of an opaque body is to be made out in the negative, one may presume that no substance equal in thickness and opacity to those which stand out clearly in the standard picture, is present in the tissues of the neck. In doubtful cases more than one "position" must be taken, in order as far as possible to exclude overshadowing by the hyoid bones.

The cryptoscope, although not so sensitive as the photographic plate to slight shades of opacity, has proved, nevertheless, highly satisfactory. The instrument employed is a circular screen, about 6 inches in diameter, of platino-cyanide of potassium, a salt which, as is now generally known, becomes luminous under the influence of the *x* rays. The rays are sent transversely through the neck from a "focus" tube placed about 5 inches from the surface, and such as penetrate tissues reach the screen, which is held as near the neck as possible. In a dark room the parts in front of the spinal column show up as a half shadow, varying in luminosity in different regions, while the hyoid bone appears as a sharply-defined black shadow, which ascends on deglutition. If a coin is placed in the pyriform fossa or a silver probe is passed into the larynx, their shadows are seen with perfect distinctness. On passing the card of standard objects between the tube and the neck, the majority of them can be seen, clearly defined, on the luminous image.

The cryptoscope is then of real value in the removal as well as in the detection of foreign bodies. Where manipulation in a darkened room is considered undesirable, an assistant making use of a light tight box or velvet cloth can, by watching the movements of the shadow of the forceps, direct the operator as to the relative position of his instrument and the foreign body. As a rule, no difficulty will be experienced in working in a room momentarily darkened, and under these circumstances the operator, sitting, if need be, in the usual position in front of his patient, may himself judge of the necessary manipulations by observing the cryptoscopic image reflected towards him by a mirror fixed to the screen at a suitable angle. He will probably find no difficulty in standing at the side of the patient and watching the screen directly.

Ernest Waggett, M.B., B.C.Camb.,
Pathologist London Throat Hospital.

DETAILS IN THE CONSTRUCTION OF THE TUBES AND SCREENS.

Dr. Dawson Turner (Edinburgh) writes that everything seems to depend upon the kind of glass of which the Crookes's tube is made. He has had several blown for him, both of the correct focus and of other patterns, which he has exhausted thoroughly—some so thoroughly that the electrical discharge preferred a 3-inch or even 4-inch air gap rather than go through the tube, and yet many of these tubes were quite useless for skiagraphy because not made of the right sort of glass. The right sort of glass to use is soft German containing no lead, and even of this there are many varieties, some good and some bad. The least trace of lead is fatal because of its opacity to the *x* rays. There can be little doubt that the rays start from the kathode, receive reinforcement by reflection from the anode, and are not generated at the surface of the glass at all. He would therefore repeat the suggestion of the employment after Lenard of a small aluminium window inserted into the wall of the tube at the place where the rays strike. Dr. Dawson Turner is experimenting in this direction. Dr. Turner finds tungstate of calcium quite as effective as the platino-cyanides for the preparation of fluorescent screens; it certainly has the advantage of being enormously cheaper. Using such a screen he has been able to get a shadow of the vertebral column. This fact certainly places the tungstate of calcium on a level with potassium platino-cyanide, with which a similar experiment has been made.

THE CRYPTOSCOPE.

Dr. Lawson Russell finds that a very good modification of the cryptoscope can be made in the following way. Rub down the crystals of platino-cyanide of barium in a glass mortar, wet the powder with absolute ether (0.720), then pour on flexile collodion, mixing gently to avoid bubbles of air. Now pour the fluid over the surface of a celluloid film, floating it evenly over the entire surface, keeping the film moving till the collodion dries. The film so prepared should, after drying, be pressed against a glass plate of equal size, and kept in contact with it by a light wooden frame, the coated surface towards the glass. The frame is then fitted into the bottom of a box (cardboard or wood); eyeholes are then pierced in the lid of the box, and fitted with tubular eye-pieces. In making his he has utilised portions of a binocular field glass, removing the lenses. The celluloid film may be either quarter or half-plate size, and glass of course to match; a quarter plate makes the most convenient size to work with. The glass plate is

towards the eye in using the instrument, and the uncovered side of the celluloid film is towards the tube producing the *x* rays, with the bottom of the box intervening.

With such an appliance it is possible to distinctly see the following things:

1. A fine needle through the palm of the hand, laid transversely to the metacarpal bones. The hand was that of an adult.
2. A threepenny piece through a block of wood four inches thick.
3. Surgical instruments through their cases (leather or wooden) with the utmost distinctness.
4. The bones of the foot through a heavy-soled boot.
5. The bones of the fingers through a volume of the British Medical Journal.

INJURIOUS EFFECTS ON THE SKIN.

Dr. L. G. Stevens draws attention to the fact that workers on the new method often suffer from a variety of skin affections. In a case under his notice a gentleman, who had been assiduously experimenting with the Roentgen *x* rays ever since the announcement of their discovery, and who has been working chiefly with the cryptoscope, called attention when visiting his laboratory to the condition of his skin. The upper and lower eyelids of both eyes, the alæ nasi, and upper lip were all swollen, and the seat of an erythema which was not itchy but very painful. The affection was also present on the hands and wrists, and on the prepuce. On the back of the hands were some raised and hard spots. There was no constitutional disturbance. This and the seat of the eruption point conclusively to irritation as the cause of the eruption. The substances with which he has been working are barium platino-cyanide, potassium platino-cyanide, and tungstate of calcium.

These facts have been observed before, but their true interpretation is, perhaps, a little different from the conclusions arrived at by Dr. Stevens. The same phenomena have been observed by other workers, and by workers who have not been using platino-cyanides. From this fact, and from the communication already made to the British Medical Journal on snow blindness, it seems more probable that the observed rash is more of the nature of a sunburn. If this is so, it seems to indicate the presence of *x* rays as a normal constituent of sunlight, as has already been asserted by Continental observers.

THE LOCALISATION OF MURPHY'S BUTTON IN THE INTESTINE.

The suggestion has been made to us that skiagraphy may afford valuable information as to the position of Murphy's button after intestinal anastomosis. The new process is undoubtedly capable of proving the presence of the button in the abdominal cavity, but it can give no accurate information as to the particular piece of intestine in which the button is lodged, and this for two reasons: First, no measure of depth is given in a flat projection such as a skiagraph is, and, secondly, owing to peristalsis, the locality of the piece of intestine within which the button lies is constantly liable to alteration. Still, while not affording absolute localisation, the new process is certainly capable of giving valuable indications directing a proposed search.

ITS APPLICATION TO INJURIES AND DISEASES OF THE LOWER LIMBS.

Dr. G. A. George (Bournemouth) writes: I have been for some time working at the so-called "new photography," and I am pleased to say with excellent results. Working with the new focus tube of Messrs. Newton and Son, of Fleet Street, London, I have obtained very good skiagraphs of the hand, foot, wrist, and elbow-joint in three, three and a-half, and four minutes for the hand, according to thickness, in six minutes for the foot, in eight minutes for the wrist, and in fifteen minutes for the elbow-joint of a pretty muscular lad.

I was asked by a medical friend whether I could take a skiagraph of a fractured femur accompanied with considerable swelling of the limb in a muscular young man. My friend did not feel perfectly satisfied, as on account of the swelling and tenderness it was very difficult to be sure that the ends of the fractured bone were in perfect apposition, and when the patient's friends suggested that an attempt should be made to obtain a skiagraph of the seat of the fracture, he very readily fell in with their views and asked me to undertake it.

In order to get some information as to the length of time required, I attempted on April 9th to obtain a shadow picture of a portion of my own femur, and in an hour I succeeded, but the result was very faint. The same evening I experimented on the femur of a friend, and gave an hour and a-quarter's exposure. The result was unmistakable, but still very faint. When I made an attempt to get a skiagraph of the fractured femur on April 11th I gave an exposure of an hour and three-quarters, and the result was as successful as I could have hoped, considering the difficulties of the case. The skiagraph showed that instead of the ends of the bones being in apposition there was a longitudinal displacement of an inch and a-half, and a transverse displacement of at least half an inch. The picture also gave some information as to the shape of the broken ends. My medical friend expressed himself as more than satisfied with the result of the experiment.

This application of the "new photography" is, I believe, original, and suggests a wide field of usefulness for Professor Roentgen's wonderful discovery. Many surgeons will doubtless avail themselves of the help of the *x* rays to satisfy themselves that they have done the best for their patients, and probably many patients will be curious enough to seek to obtain for themselves similar information.

SKIAGRAPHY IN BULLET WOUNDS AND FRACTURES OF THE HAND.

Dr. Patrick S. O'Sullivan (Cork) sends us a good skiagraph of a hand in which is embedded a bullet. This skiagraph is interesting from the fact that it was obtained by means of very simple apparatus. A 1½ inch spark coil and Roentgen's pattern of tube, with an exposure of twenty minutes. The carpal bones are clearly defined, and some detail of bone structure is discernible.

Dr. Howard Sturge (Folkestone) sends a skiagraph taken by Mr. J. W. Stainer, illustrating a case of compound fracture of the terminal phalanx of the right index finger. The injury was caused in December last by the finger being caught between the chain and cog-wheel of a bicycle. The cog was forced through the nail, fracturing the bone below. The joint was uninjured. In six weeks the wound had healed, but some displacement or enlargement of bone is felt, and there is some pain on firm pressure, but it is difficult to be certain of any abnormal movement. The exposure was for fifteen minutes, five minutes having proved insufficient in a previous attempt.

We have been asked to state that Dr. A. P. Laurie is the author of the skiagraph illustrating Mr. John T. Leon's case, published in the British Medical Journal on April 4th.

THE BATTLE OF THE CLUBS.

Medical Men and Friendly Societies.

At the National Conference of Friendly Societies, held recently in London, one of the subjects discussed was the action of the medical profession towards the friendly societies, and, according to the *Friendly Societies' Recorder*, the speaker who introduced the matter "had many sympathetic listeners to the charges he brought forward." Another gentleman "spoke very strongly against the action of the doctors. He said that whereas the doctors were their servants they were fast becoming their masters, and every attention should be paid to the question and a stop put to what was becoming an anomaly." Apparently to show the extent to which the doctors will go in their claims, it is pointed out by the *Friendly Societies' Recorder* that the friendly societies of Dundee have hitherto paid their doctors 2s. 6d. a year for medicine and attendance, and the doctors are now agitating for an increase to 4s. 6d.; that the Stockport doctors, who had also accepted 2s. 6d., now demand 4s. 4d., and that the Trowbridge doctors propose that working men earning 30s. a week, or paying £10 a year rent, shall pay for their doctoring in the ordinary manner.

"4. That the Grand Jury thoroughly endorse the remarks of the Deputy Recorder in his charge to them, and strongly urge the immediate vaccination of all children, and revaccination of adults as the only means of stamping out small-pox in the city."

This very clearly sets out what is needed, and if only the advice given were seriously acted upon throughout the country, we might ere long practically banish small-pox from our midst.

THE BATTLE OF THE CLUBS.

Lincoln.

In the British Medical Journal of April 4th, p. 859, we published a series of resolutions adopted at a meeting of the medical practitioners residing in Lincoln specifying the rules and scales of fees which ought to be adopted in all the medical clubs under the Friendly Societies' Act and in ali medical aid associations.

The scale of fees has come in for some unfavourable comment from correspondents of the Journal on the ground that in certain instances the payments proposed are too low, but the clubs in the city have rejected the very moderate proposals made. The Oddfellows' Medical Institute refuses "either to accept the conditions or to recognise" the right of the medical practitioners in Lincoln "to dictate them." The Lincoln United Friendly Societies Dispensary has declared "its inability to recognise in any way the manifesto of the medical men of Lincoln or any outside pressure attempted to be put upon the committees of friendly societies."

This last resolution very clearly expresses the point upon which we have insisted frequently. The managers of burial clubs have got into the way of thinking that they are entitled to dictate the terms upon which they are to receive the services of medical officers. They seem to forget that if the members of the societies have the right to combine to obtain the services of medical men, medical men have a right to combine in order to secure fair remuneration.

It is sincerely to be hoped that the medical profession will combine to insist upon being parties to the bargain, and not the mere servants of these organisations. We are informed that Dr. D. Johnston, the senior medical officer of the Oddfellows' Medical Institute, and Drs. Whitwell and W. J. McDade, medical officers of the Lincoln United Friendly Societies Dispensary, have sent in their resignations of these offices, in consequence of the hopelessly unconciliatory character of the resolutions adopted by the executives of the clubs. We regret to hear a rumour that one medical officer concerned has not so far carried out the understanding that a refusal of the scale and rules by the clubs should entail the severing of the connection of the medical officers with them. We shall hope to hear from him that this rumour is unfounded.

The clubs will now probably cast about for new medical officers to supply the places of those who have resigned. We would earnestly invite any young medical men who may see their advertisements to read the rules and scale of fees proposed by the medical practitioners in Lincoln, published in the British Medical Journal of April 4th, p. 859, and to consider well before they allow themselves to be made pawns in the Battle of the Clubs.

State Aid to Friendly Societies.

Mr. T. Wilson Parry (Youlgreave) suggests that in the same way as Government subsidises education, so it might also furnish funds to assist properly conducted Friendly Societies, and one of the conditions of the grant might be that the doctor was adequately paid; that national thrift and a provision for sickness and old age on the part of the industrial population are fully as important to the State as education, and might very properly be assisted out of the national exchequer. He concludes by saying: "If the clubs themselves could be brought to see the importance of a step like this, and, acting in unison, exert themselves to importunately urge Parliament to give them such grants, they would not only better themselves in an important and dignified way, but they would greatly add to the position and to the respect they should have for their medical officer."

The suggestion is worthy of consideration, but the possibility of it being carried out is scarcely in the vista of practical politics.

Donations and Bequests.—The late Mr. John Lysacht has bequeathed £250 each to the Bristol General Hospital, the Bristol Royal Infirmary, and the Bristol Dispensary,

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

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Late Shuter Scholar of St. Bartholomew's Hospital.

XI.

Cases of Tubercle of Bone.—Old Excisions.—Ununited Fracture.—Fracture into the Knee.—Application to Field Surgery.—Multiple Exostoses, etc.

I have to record this week several cases having features of novelty. The following are those of greatest interest with which I have been occupied at the request of the medical men in charge of them:

Case of Suspected Calcified Tuberculous Glands in a Child.—A good negative was obtained showing the pelvis and vertebral column, but there was no evidence of any calcifications. This case is interesting as showing the facility with which it is now possible to obtain skiagraphs of the spinal column and pelvic bones in subjects not too thick.

Case of Tuberculous Knee.—The excellent skiagraph obtained showed a clear patch in the upper end of the tibia—presumably an abscess cavity. This opens up a new field of usefulness in the diagnosis of abscess in bone.

Case of Fracture into the Knee-joint.—This case I did at the Netley Hospital, and for the notes of it I am indebted to Surgeon-Colonel Stevenson. It is hoped to publish the skiagraph, together with full notes of the case and the result of the treatment which the skiagraph indicated at a later date. Surgeon-Colonel Stevenson writes: "A fracture of the femur at about 3 inches above the condyles was produced in a man, aged 33, by indirect violence. On the day after the accident I examined the case, and found the signs of the injury at the point above named to be very evident. There was no shortening, no depression of the upper end of the lower fragment into the popliteal space, and no increase of width across the condyles. Ten days later Mr. Sydney Rowland made two skiagraphs of the case, one from side to side, and another from the front to the back, with an exposure of fourteen minutes and ten minutes respectively; at this time one inch shortening could be measured. From both pictures together the condition of the fracture could be perfectly seen. The first one, from side to side, shows the shortening and the partial separation of the fragments, and the second shows a line of splitting from the site to the fracture into the joint through the intercondyloid notch. The advantage of the new photography in this case, both as regards prognosis and treatment, can hardly be overrated."

Four Cases of Excision of Knee-joint and one of Excision of Elbow, under the care of Dr. Ward Cousins, were skiagraphed by me at Portsmouth, showing the state of things some years after operation.

A Case of Ununited Fracture of both Bones of Forearm in which non-union was supposed to have been due to impaction of soft tissue. The skiagraph here revealed unexpected conditions, which will modify the further surgical proceedings, for it showed great displacement and overlapping of fragments to the extent of quite half an inch, without impaction of soft tissue.

THE VALUE OF THE NEW PHOTOGRAPHY IN MILITARY SURGERY.

The authorities of the Army Medical Department are taking active steps to introduce the new method into use in the approaching African expedition. The value of the method for the discovery of bullets is undisputed; the only difficulties to be encountered in practical work being that of so arranging the apparatus that the whole process may be worked in a field hospital. But such difficulties are of the nature of arrangement only, and can be overcome with a little ingenuity. At Netley Hospital I attended on the invitation of Surgeon-Colonel Stevenson, and gave a demonstration of the process and skiagraphed the case above alluded to. I may be allowed to state that preparations are in active progress and that in all probability a skiagraphic outfit will form part of the equipment of future expeditions in which bullet wounds are to be dealt with.

Fig. 1. Skiagraph of femur: Multiple Exostoses (Sydney Rowland).

A CASE OF MULTIPLE EXOSTOSES.

THE accompanying skiagraphs are from a case of multiple exostoses under the care of Dr. Dawson Williams at the Shadwell Hospital for Children, who has furnished the following notes:

The patient was a girl aged 9. There was no history of any similar bony deformities in previous generations, nor among her brothers, of whom there are three. The child had "rickets of the head" when an infant, but walked early. When between 2 and 3 years old she was treated for "dropsy" at King's College Hospital. The mother first noticed lumps on the child's legs about August, 1895, and lumps and some distortion of the hands in November.

The distribution of the exostoses is generally symmetrical, but their size and form do not correspond completely on the two sides. The largest is on the right femur, about 3 inches above the knee-joint. On palpation it appeared to occupy the inner and posterior aspect, and to be rounded in form with a broad base. The skiagraph shows, however, that it is coneshaped, and also that there is another similar growth on the outer side, just above the epiphysis.

It is noticeable that both these growths appear to have been somewhat more transparent to the *x* rays than the shaft of the bone. On the left femur, on the inner aspect, about 2 inches above the inner condyle, a smaller growth can be felt.

The skiagraph shows also a bony nodule on the inner aspect of the right tibia, a little below the internal tuberosity, and there is a similar but much smaller nodule at the corresponding part of the left tibia. There are also three small nodules at the base of the inner malleolus on this side.

On the inner aspect of the left humerus, about an inch below the head, are two nodules, the lower rather posterior to the upper, connected by a ridge. On the right humerus is a single nodule corresponding to the lower of the two nodules on the other side. A small sharp-pointed nodule is to be felt on the left ulna, on its inner aspect, most easily recognised when the hand is midway between pronation and supination. It was not noticed when the child was first seen, and she believes that it has made its appearance since the attack of illness mentioned below.

The hand shown in the other skiagraph from this case presents an interesting deformity of which the cause is clearly displayed. At the base of the first phalanx of the little finger is a bony growth which has displaced the whole finger inwards, and it is curious to note that a compensatory curve at the last interphalangeal joint appears to have been established. This exostosis also is seen to have been more transparent than the rest of the phalanx. This fact seems to render it probable that the growth is composed of cancellous tissue. There is also some overgrowth connected with the inner aspect of the first phalanx of the index finger, which has displaced the two terminal phalanges outward. There is a similar deformity to be felt at the outer side of the base of the middle phalanx of the middle finger on the opposite side.

This skiagraph of the hand shows very well the condition of ossification at this age (9 years). In particular the epiphysis at the proximal extremity of the metacarpal bone of

the thumb is very conspicuous. It is seen, also, that the epiphysis of the proximal phalanx of the little finger is not involved in the exostosis, which has, in fact, formed a spur on the outer side, so that the epiphysis lies in a kind of cup. In the wrist the bones which are largest and possess most nearly their adult form are the os magnum, the unciform, and the cuneiform. In all these bones the ossification begins before the third year (first, second, and third years respectively). The semilunar and trapezium, in which ossification begins in the fifth year, are small and have not their characteristic form and shape. The diminutive size of the scaphoid bone, which begins to ossify in the eighth year, is striking, while the pisiform in which ossification does not commence until the eleventh or twelfth year does not show at all in the skiagraph. The trapezoid bone is more conspicuous than in most skiagraphs of the wrist, and larger than might have been expected in view of the fact that ossification does not usually commence in it until the eighth or ninth year. It is interesting to compare the condition of the wrist in this skiagraph with that shown in the wrist of the infant of whom a skiagraph was published in the British Medical Journal of March 28th. In the infant there are no signs of any ossification in the wrist, nor are the lower epiphyses of the radius and ulna visible, whereas in the wrist of the child they are of considerable size.

When first seen on December 4th, 1895, the child was suffering from adenoid growths of the pharynx, and these were removed a few days later. Shortly afterwards she was taken ill and came under the treatment of Dr. H. C. Powell, of Forest Gate, who has been good enough to furnish the following notes: "She was complaining of pain in all her joints, especially the knees and ankles; any movement caused her great pain; these joints were also swollen. She had a temperature of 102°. She remained in this condition for about a week when the temperature began to fall, and the pains getting less severe she gradually recovered, and at the end of about three weeks was nearly well. During the first week it was almost impossible to move the child in bed, as it caused her so much pain. During the illness I did not detect any heart mischief. I do not know if this organ bears any evidence of her illness now, as I have not seen her since. Under the usual treatment for rheumatism she soon got well. I have not attended the child for any other illness." Though there are no grounds for connecting this attack either with the operation or the multiple exostoses, its occurrence appears to be worthy of record. It may be added that the exostoses do not appear to bear any relation to the points of insertion of muscles.

Fig. 2.—Skiagraph of hand: multiple exostoses (Sydney Rowland)

In answer to numerous applications for prints of his skiagraphs, Mr. Sydney Rowland wishes to state that he has handed all his negatives to the London Stereoscopic Company, from whom prints may be obtained.

The French Ophthalmological Society will hold its annual meeting this year in Paris on May 4th and three following days.

Medical Magistrate.—Mr. Thomas Beamish, M.R.C.P.I. has, on the recommendation of the Earl of Brandon, been appointed to the Commission of the Peace for the county of Cork.

Presentation.—At a recent meeting of the Nelson Branch of the New Zealand Medical Association, Mr. G. H. Cressey, M.R.C.S., L.R.C.P., who for more than nine years had acted as Honorary Secretary, was presented, on his leaving for England, with two handsome silver gilt fruit dishes, bearing a suitable inscription.

Dr. J. A. Moloney, formerly Medical Officer of the Stairs Expedition to Katanga, has just returned to England on the completion of his expedition to the hitherto unexplored portions of the Chartered Company's territories in Northern and Southern Augoniland, to the west of Lake Nyassa. He did not find it necessary to fire a single shot during the whole of his journey. The territory had been visited by Dr. Livingstone, and is inhabited principally by people of Zulu origin, who have conquered the original inhabitants. Powerful chiefs rule the country.

LITERARY NOTES.

SIR B. W. RICHARDSON is about to bring out, through Messrs. Longman, a species of autobiography containing his reminiscences of his professional life and an account of some of the aims of his career. There will be added a number of essays on scientific and philosophical themes.

A new cheap edition of *Home Nursing and How to Help in Cases of Accident*, by Samuel Benton, L.R.C.P., M.R.C.S., has just been published by Messrs. Abbott, Jones, and Co.

We have delayed too long calling attention to the appearance of the eighth issue of the *Annual of the Universal Medical Sciences*, edited by Dr. Charles E. Sajous. It forms five large octavo volumes, and is by far the most comprehensive annual published in the English language, if, indeed, it would be possible to find its parallel in any other language. The editor announces various changes in his staff of associate editors and contributors, and, in fact, the first article in the *Annual*, that on Diseases of the Lungs and Pleura, has been undertaken by Professor Wilson, of Philadelphia, with the collaboration of Dr. Eshner, of the same city. A special feature of the *Annual* is the number of excellent woodcuts and lithographs by which it is illustrated. The series is one which should find a place in every library of reference, and will be found extremely useful also by practitioners.

ASSOCIATION INTELLIGENCE.

NOTICE OF QUARTERLY MEETINGS FOR 1896. ELECTION OF MEMBERS.

MEETINGS of the Council will be held on July 8th and October 21st, 1896. Candidates for election by the Council of the Association must send in their forms of application to the General Secretary not later than twenty-one days before each meeting—namely, June 18th and October 1st, 1896.

Any qualified medical practitioner, not disqualified by any by-law of the Association, who shall be recommended as eligible by any three members, may be elected a member by the Council or by any recognised Branch Council.

Candidates seeking election by a Branch Council should apply to the Secretary of the Branch. No members can be elected by a Branch Council unless their names have been inserted in the circular summoning the meeting at which they seek election.

FRANCIS FOWKE, *General Secretary.*

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the offices of the Association, 429, Strand. The rooms are open from 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 2 P.M. Members can have their letters addressed to them at the Office.

BRANCH MEETINGS TO BE HELD.

METROPOLITAN COUNTIES BRANCH.—A meeting of this Branch will be held at the Geological Museum, Jermyn Street, on Tuesday, May 12th, 1896, at 8.30, subject—The Amendment of the Laws relating to Certificates of Death and Coroners' Inquests.—ANDREW CLARK and ISAMBARD OWEN, Honorary Secretaries.

SOUTH-EASTERN BRANCH: EAST SURREY DISTRICT.—The next meeting will be held at the Greyhound Hotel, Croydon, on Thursday, May 14th, at 4 P.M.; W. Rosser, M.D., of Croydon, in the Chair. Dinner at 6 P.M.; charge, 7s., exclusive of wine. All members of the South-Eastern Branch are entitled to attend, and to introduce professional friends. Agenda: The Adoption of the Duties of Medical Defence by the British Medical Association. The Civil Rights Defence Committee. Mr. William Anderson: The Surgical Treatment of Lupus and Tuberculous Disease of the Skin. Mr. Sydney Rowland, B.A.: Demonstration on Skiagraphy.—HENRY J. PRANGLEY, Honorary Secretary, Tudor House, Anerley, S.E.

SOUTH-EASTERN BRANCH: WEST SUSSEX DISTRICT.—The next meeting of this District will be held at the Worthing Infirmary on April 30th, at 3.30 P.M. Dr. Charles Arkle (London) will read a paper on the Open-Air Treatment of Phthisis. Dr. Morris (Bognor) will read notes on two cases of Rare Nervous Disease. Mr. W. S. Simpson (Worthing) will read notes of a case of Internal Strangulation of the Bowel. A communication on the subject of Medical Defence will be read and the resolution submitted: "That it is desirable that the duties of medical defence be undertaken by the British Medical Association." Dinner will be at the Marine Hotel, Worthing, at 6 P.M.—FRANK HINDS, Honorary Secretary, Worthing.

SOUTH-EASTERN BRANCH: EAST SUSSEX DISTRICT.—The next meeting will be held at the Queen's Hotel, Eastbourne, on Tuesday, May 12th, at 3.30 P.M. Dr. A. P. Sherwood will preside. Notice of papers, etc., should be sent to the Honorary District Secretary, J. W. BATTERHAM, Bank House, Grand Parade, St. Leonard's.

NORTH OF ENGLAND BRANCH.—The spring meeting will be held at Durham on Thursday, May 21st, at 4.30 P.M. The questions of medical defence, and of a local ethical committee will be taken up. Members wishing to exhibit patients or specimens, or to read papers, are requested to send notice to the Honorary Secretary of the Branch. The dinner after the meeting will take place at the County Hotel at 6 P.M.; 6s 6d. each, exclusive of wine.—G. E. WILLIAMSON, F.R.C.S., Honorary Secretary, 8, Eldon Square, Newcastle-on-Tyne.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—The spring meeting will be held at Tenby on Saturday, May 16th. Notices of motion, papers, etc., to be sent in before Thursday, April 30th.—ALFRED SHEEN, M.D.; D. ARTHUR DAVIES, M.B., Honorary Secretaries.

SHROPSHIRE AND MID-WALES BRANCH.—The spring meeting of this Branch will be held at the Salop Infirmary on Tuesday, May 12th, at 3 P.M. Members who wish to bring forward any business, to read papers, to show cases or specimens, or to propose any new members are requested to communicate with the Honorary Secretary not later than Friday, May 1st.—H. WILLOUGHBY GARDNER, Honorary Secretary, Shrewsbury.

BATH AND BRISTOL BRANCH.—The fifth ordinary meeting of the Session will be held at Bath on Wednesday evening, April 29th, at 7.30, Carey Coombs, M.D., President. The Branch will be invited to express an opinion on the question whether medical defence shall be undertaken by the Association (*vide* BRITISH MEDICAL JOURNAL, February 8th, 1896, pages 348 and 353). The following communications are expected:—Dr. G. A. Bannatyne and Dr. F. R. Blaxall: Specimens and Cultures of the Bacilli of Rheumatoid Arthritis. Dr. Preston King: Classification in Chronic Joint Affections. Mr. S. E. Rigg: (1) Intussusception with Specimen; (2) Spina Bifida with Specimen.—W. M. BEAUMONT (Bath) and J. MICHELL CLARKE (Clifton), Honorary Secretaries.

ABERDEEN, BANFF, AND KINCARDINE BRANCH.

AN ordinary general meeting of the Branch was held at Aberdeen on April 15th, Professor STEPHENSON in the chair.

New Members.—Dr. H. M. W. Gray, Royal Infirmary, and Dr. W. Rattray Pirie, 49, Holburn Street, were balloted for and unanimously admitted members of the Branch.

The New Photography.—A few items of business having been disposed of, Dr. M'KENZIE DAVIDSON gave a further demonstration of the Roentgen skiagraphy. He first showed the Newton focus tube and described its method of action. A large number of skiagraphs was then exhibited, including plates showing needles, pieces of glass, and bullets which had been localised and successfully removed. Very interesting plates were shown of a fractured cervix femoris, and of bullets in the head of a cadaver. Dr. Davidson also exhibited several views of normal and diseased joints and hands of two children, aged 7 and 8 years, showing the epiphysial cartilages and varying degrees of ossification of the carpal bones. He then exhibited fluorescent screens of potassium platinocyanide, of crystallised tungstate of lime artificially prepared, and of sheelite, the latter two being much inferior to the platino-cyanide in luminosity. The members had an opportunity of seeing the bones of the hand and forearm through the screens.

Vote of Thanks.—On the motion of the CHAIRMAN, a cordial vote of thanks was awarded to Dr. M'Kenzie Davidson for his very interesting demonstration.

ABSTRACT OF PROCEEDINGS OF COUNCIL.

AT a numerously attended meeting of the Council, held in the Council Room at the offices of the Association, 429, Strand, W.C., on Wednesday, April 15th, 1896, Dr. WARD COUSINS, President of the Council, in the Chair, it was

Resolved: That the financial statement for the year ending December 31st, 1895, as certified by the auditors, be approved and published in the BRITISH MEDICAL JOURNAL in accordance with By-law 26.

[*The remainder of the Proceedings of the Council will appear in a future number of the* BRITISH MEDICAL JOURNAL.]

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

[Report to the British Medical Journal.]

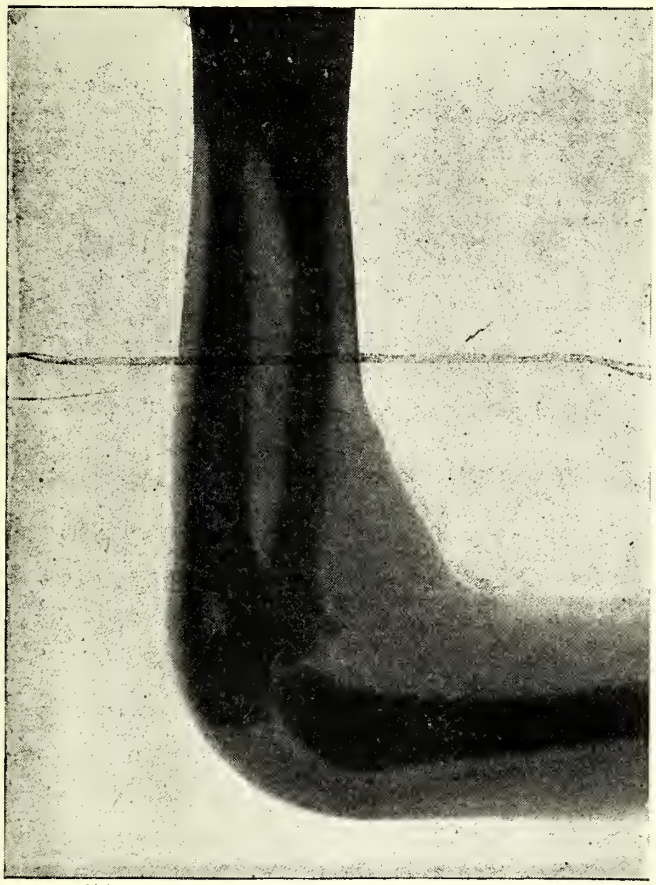
By SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

XII.

Demonstration of a Bone Abscess.

The following case, under the care of Mr. R. W. Parker of the German Hospital, is one, I venture to think, of novelty and of unusual interest, and shows the value the new method will have in diagnosing and locating carious areas in bone. Mr. Parker has kindly sent the following note:

"Taken from a boy suffering from what appeared to be a tuberculous elbow-joint. The skiagraph revealed disease of the upper



Skiagraph showing Caries of Ulna (Sydney Rowland).

end of the ulna. The subsequent operation confirmed what the skiagraph indicated, namely, a defect in the bone of the size of a large almond, filled with carious *débris*, exactly in the position shown; the joint was apparently free." The important points in this case are (1) that the presence of the defect in the bone was not suspected; (2) that the diagnosis was indicated entirely by the skiagraph, and that subsequent operation entirely confirmed this.

The skiagraph which is reproduced herewith shows very clearly the appearance which such a carious area presents. The fact that lesions of this character are clearly indicated by the new method opens up a very wide field of usefulness, and I have already had the opportunity of skiagraphing other cases of a similar nature with equally satisfactory results, such as abscesses due to carries of spine under the charge of various surgeons, who have brought them to me with the desire of having the assistance of the new method in their diagnosis. In cases not well marked it requires some experience to distinguish between light areas due to disease and similar areas due to the intrinsic structure of the bone, but when the skiagraphic appearance of the various bones of the body is once familiar, there is not much risk of error.

Recent Developments.

There are now so many workers engaged in investigating the physical properties of the x rays, and such a large literature has already grown up in connection with them, that it is very difficult to select from and condense the numerous papers that have appeared without running grave risk of omitting what in the end may turn out to be the most important. The following summary contains, it is hoped, a fair selection of the work that has recently been done.

Much of the work has been directed towards reducing the exposure necessary for skiagraphing deeper parts. Winkelmann and Straubel of Jena have found that by backing the plate with an inexpensive material they are able to obtain negatives of the finger bones in about ten seconds, using a 3-inch spark. It is very difficult to judge from this report how far these observers have succeeded. It is first necessary to know what variety of Crookes's tube was employed. With the focus tube the same result is quite possible, and Dr. Macintyre has gone further and obtained a fair negative with a single flash obtained by one vibration of a mercury commutator. In this connection, too, it may be noted that all forms of tubes which I have examined work with a far greater intensity for the first few seconds, after which they fall off to a much lower standard. What the explanation of this phenomenon is is not quite clear; it may be that the molecules, after the tube has been resting, are uniformly distributed through the tube, and so are more available for the bombardment, whereas after the tube has been in action for some time this state of things changes into a less favourable one.

New Methods of Shortening the Exposure.

Much of the work in shortening the exposure has been directed along the lines of placing a fluorescent screen either in front of or behind the plate, and results in this direction seem more promising. From the fact that it is possible to obtain several records of the same object by using in place of the photographic plate a pile of rapid bromide paper it is evident that very little of the energy of the rays is absorbed in effecting the change in the silver salt which produces the image. If we can save the extra energy which is thus wasted when a single plate is used it is obvious that the time of exposure must be considerably shortened. Fluorescent screens seem the most effective means of doing this. The only drawback at present is that the substances of which they are composed are at present so expensive that to make a screen large enough for a 10×8 plate would cost a sum that few would care to pay. Edison's calcium tungstate has not yielded such good results in this country as the original platino-cyanide screens. Some substance easily prepared, cheap, and permanent, which will fluoresce under the influence of x rays, is most urgently needed at present.

Some Successful Applications of the Method.

Numerous reports have come to hand of cases successfully diagnosed by the help of the new method. They are too numerous to publish in full, but the following extracts will indicate the class of cases in which most benefit is being derived:

G. E. Williamson, M.A., F.R.C.S., Surgeon to the Royal Infirmary, Newcastle-on-Tyne, sends notes of a case of which Mr. Havelock and Professor Stroud produced the skiagraph. The skiagraph represents the appearance of a tibia some years after excision of the shaft, and bears testimony to the completeness with which the bone has been reformed. This case opens a new field for the use of the x rays. It is quite possible and may be found most useful to examine periodically, either by the screen or skiagraph, the progress being made in similar cases and the rate at which new bone is being formed.

Dr. L. Howard Sturge, Folkestone, sends an excellent skiagraph of a hand showing very clearly a fracture of the terminal phalanx of the first finger. This skiagraph shows beautifully the detailed structure of the bones, the rays

having traversed the bones entirely and revealed their internal condition.

Dr. G. W. Tawse, Whitehaven, sends a skiagraph of a foot in which a needle is embedded. By the aid of the picture the needle was removed under ethyl chloride.

Dr. Thelwall Thomas, Liverpool, also sends a similar case in which a needle was removed from the hand by the aid of a skiagraph after a fruitless search had been made with the ordinary means.

From Mr. Walter Ridley, F.R.C.S., of the Royal Infirmary, Newcastle-on-Tyne, comes the report of a successful removal of a fragment of metal embedded in the hand.

For the information of numerous correspondents who ask which is the best form of battery for use in working coils, I may say that my experience has decided in favour of the Lithanode element; the electromotive force is exceedingly constant, and, the internal resistance being very low, enables the batteries to be discharged at very high rates, without any material variation in the potential. Another point in their favour is that for unit capacity they are lighter and smaller than any other accumulator with which I am acquainted. Owing to the form of construction, there is little or no local action in the elements, and therefore the cells will retain their current for a very long time. One other point in their favour is that the discharge is exceedingly uniform, and there is practically no variation in the potential during the whole of the discharge.

Sir,—In the British Medical Journal for February 29th, 1896, p. 559, in a letter on "Therapeutic Use of Roentgen's Rays," Professor Sheridan Delépine concludes that the *x* rays have not much germicidal action, because various organisms in test tubes were not affected by them. Does this evidence warrant the conclusion, considering the fact that the glass of which the tubes are made would almost entirely prevent the transmission of the rays?—I am, etc.,

Nottingham Place, W., April 7th. T. Wakefield.

IMPROVEMENTS IN ROENTGEN'S PHOTOGRAPHY.

Sir,—It is highly desirable that the exposures necessary for obtaining good results by means of Roentgen's photography when applied to the human body should if possible be reduced. This is not so important when it is merely a question of photographing the extremities, for which the necessary exposures are in any case now not very prolonged. Even in these instances in the case of children shorter exposures would be an advantage, but the question of reducing the exposures becomes of real importance, more especially in connection with the thicker portions of the body. Indeed, in order to ensure convenience and certainty in detecting calcareous deposits in the interior organs for photographing the spine and such-like purposes, a considerable reduction in the exposures now required is a *sine quâ non*.

Happily there is every prospect of great improvements in this respect. The chemical action of the Roentgen rays upon a photographic film may be either a direct action or may be a secondary effect, due to fluorescence of the film itself or of its support. In either case only a very small portion of the energy in the rays is photographically utilised under ordinary circumstances. This is clear, from the fact that a large number of photographs may be taken at once by means of superimposed films, and also by the fact that if a photographic film mounted on celluloid be observed through a cryptoscope, it will be seen to be exceedingly transparent.

Nearly three months ago, in some remarks that I made at the close of Mr. Porter's demonstration at University College on January 30th, I suggested as a means of more completely utilising the energy of the rays, and thereby shortening the necessary exposure, the use of suitable fluorescent material applied either in the form of a screen behind the photographic film, or introduced into the substance of the film itself.

Since then I have made numerous experiments in the direction indicated, and some weeks ago obtained conclusive evidence that by means of a screen thickly coated with potassium platino-cyanide and gum, placed behind a celluloid photographic film, the necessary exposure could be greatly reduced; also that in a less degree the same result could be obtained by the similar employment of a screen coated with powdered fluorspar.

The chief objection to this method lies in the fact that it is very difficult to avoid granular results. Unless the fluorescent material be in a finely-divided condition its grain shows distinctly, and marks the detail of the finished picture. The platino-cyanide does not work so efficiently when finely powdered as when in moderately coarse crystals, but good results can be obtained by thickly coating a thin celluloid film with an emulsion of this salt ground to fine powder in collodion, and using the screen so prepared with its celluloid surface in contact with the sensitive surface of the photographic film. I have obtained considerably better results with a finely-ground sample of tungstate of calcium, prepared for me by Messrs. Hopkins and Williams. This may be used either in loose powder, or made up with gum into a paste and dried. With this substance it is easy to obtain sharp and fully-exposed negatives of the hand in from five to ten seconds with a moderately-excited tube, with which with ordinary arrangements one to two minutes' exposure would be necessary.

I have also tried some special plates prepared for me by Messrs. Marion into the sensitive emulsions of which fluorescent substances such as powdered fluorspar and calcium tungstate were introduced before application to the glass. Though the results so far obtained by this method are not very satisfactory owing to granularity, the presence of the fluorescent substance in the photographic film appears undoubtedly to increase its sensitiveness to the rays. Apart from the question of granularity, the introduction of fluorescent material into the film does not appear to take away the sharpness of the result, and the same may be said with regard to the application of a fluorescent screen behind the film vided the surface of such a screen is even, and is in very close proximity to the sensitive gelatine. No doubt much experimenting remains to be done in order to obtain the best possible results.—I am, etc.,

Victoria Street, S.W., April 22nd. A. A. C. Swinton.

OBSTETRIC HOSPITALS AND TREATMENT BY MIDWIVES.

A meeting of the members of the medical profession in Liverpool and the neighbourhood was held at the Medical Institution on May 11th, to consider the subject of the Ladies' Charity and Lying-in Hospital, and the recent position taken by the Committee of the Institution, which has involved the resignation of the entire medical staff. Upwards of 200 practitioners were present. The debate was of an animated character; all the speakers were unanimous in condemning the action of the Board of Management; any difference of opinion that was expressed having reference only to the exact wording of the resolutions which should be submitted to the meeting. The resolutions, which were finally approved and carried with only one dissentient, who agreed on the main principle, were as follows:

1. That this meeting of the medical profession views with much indignation the recent action of the Board of Management of the Ladies' Charity towards the medical staff of the charity, and desires to express its warm approval of the action of the staff in refusing to hold office under the conditions proposed to them.

2. That this meeting trusts that while the present regulations are in force at the charity no member of the medical profession will accept office at that institution, or will give assistance on or after May 19th to its officials either gratuitously or for gain, thus rendering the Board of Management responsible to the public and to the law for any dangerous consequences that may occur to patients treated by its officials.

The resolution was proposed by Mr. W. M. Banks and seconded by Mr. W. H. Manifold.

The latter clauses of the second resolution, it was explained by Mr. Banks, are not intended to debar any practitioner from rendering aid to any woman in labour who is being attended by a midwife in the service of the charity if he is sent for either by the patient herself or her friends. The clauses are necessary to prevent the Board of Management from attempting to carry on their district work without appointing any regular medical officers, relying on the assistance of any practitioner the midwife may choose to call to

visiting the Grey Mare's Tail and St. Mary's Loch, where lunch will be provided, and two hours allowed to inspect the beauties of the district. On returning to Moffat the Moffat Hydropathic Company will entertain the party to dinner in the Hydropathic Institution at 6 o'clock. Afterwards the party will return to Carlisle by train.

REPORT ON THE APPLICATION OF THE NEW PHOTOGRAPHY TO MEDICINE AND SURGERY.

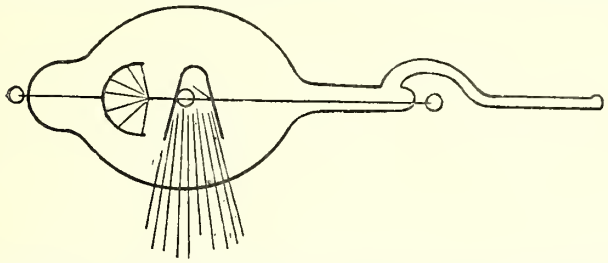
[REPORT TO THE BRITISH MEDICAL JOURNAL.]

BY SYDNEY ROWLAND, B.A.,
Late Shuter Scholar of St. Bartholomew's Hospital.

XIII.

AN IMPROVED FORM OF "FOCUS" TUBE.

AFTER several experiments I have been able to introduce a modification in the present form of the "focus" tube which, I think, is of considerable advantage. It consists in replacing



the platinum reflecting plate in the usual form of tube by a paraboloid of polished platinum, pierced at one side with a small aperture. By this means the large amount of wasteful scattering of rays from the platinum plate is very much reduced. When working, the glass opposite the open end of the paraboloid is seen to fluoresce, within a circumscribed area, with a brilliant green fluorescence, the rest of the tube remaining nearly dark. Working with a fluorescent screen there is, I find, a very solid gain in its brightness. A corresponding gain is found when photographic plates are used.

RECENT APPLICATIONS.

Among the cases under the charge of various practitioners which I have recently had the opportunity of skiagraphing, and in which new features are present, are the following:

A case of obscure injury to the foot caused by a fall from a height on to the feet. This case, which had previously been unsuccessfully dealt with elsewhere, turned out to be a downward displacement of the cuboid bone, a diagnosis of great clinical nicety.

A case in which it was important to confirm the absence of bony displacement or lesion of the shoulder-joint. Here the skiagraph showed the absence of any bony mischief, and saved the patient from the hands of a bonesetter. This is a class of case in which the new method ought to prove of the utmost value. A similar case having a medico-legal bearing, but of which it is not advisable to speak of in greater detail at present, indicates another line along which further developments may be expected.

A series of cases of club foot. This series, which I am skiagraphing for Mr. R. Barwell, F.R.C.S., will be published separately when completed.

RESULTS BY WORKERS IN ENGLAND.

The amount of material communicated by practitioners shows no sign of abatement. [It is quite impossible to publish in full the whole of this.—ED.] The following cases have been received.

Dr. J. Kerr Love sends three skiagraphs of deformity of the hands and feet. The cases are from the Glasgow Institution for the Deaf and Dumb, and "illustrate the kind of help the new photography may be expected to give in diagnosis and treatment of deformity."

Dr. James Taylor, of Chester, sends two cases of injury to the wrist. Dr. Taylor describes them as unusual, and can find no similar case described.

Dr. Edwards Phillips, of Coventry, sends skiagraphs illustrating a point of interest in fractures of metacarpal bones. The skiagraphs were taken by Dr. Hall Edwards.

Dr. G. W. H. Tawse, of Whitehaven, sends skiagraphs of a needle in the foot, indicating its position with great exactness.

Some of these it is hoped to publish as opportunity may arise.

ERRORS OF INTERPRETATION.

Not a little experience is required successfully and correctly to interpret the skiagraphic appearance of a part in all cases. Omitting the difficulty of resolving a flat projection, such as a skiagraph is, into a solid structure, and such difficulties as arise from distortion due to varying distances from the photographic plate, which difficulties are a matter of anatomical knowledge, there remain certain appearances which are very difficult of explanation, and which, if hastily acted upon, might lead to serious results.

In one case a medical man of middle age came to me for a skiagraph of a certain region of the abdomen. He had been suffering from symptoms which had been variously referred to renal and intestinal causes. On a skiagraph being obtained a buckle was found clearly to have cast an image on the plate. Thinking some mistake had arisen I again skiagraphed the region, and with the identical result. And the same appearance resulted in five successive plates. The conclusion was almost inevitable, from a skiagraphic point of view, that the subject had swallowed the buckle, and that it was present in the intestine at the time of taking the skiagraph. Such a possibility seemed too remote to be true, and no immediate steps were taken. Some weeks afterwards another attempt was made, and this time nothing abnormal was discovered. Evidently the particular batch of plates used had in some unknown manner been impressed with the image of the buckle. Had steps been taken on the strength of the appearances it might have led to an unnecessary operation.

Another class of cases are those in which iodoform has been used for dressing or injection in the form of an emulsion. Iodoform I have found is very opaque to x rays, and may thus lead to very erroneous interpretations. I have had two cases of a similar nature communicated to me; one by Dr. Hall Edwards, and another by a German correspondent. In cases of suspected foreign bodies crystals of iodoform might easily be mistaken for particles of metal or even shot, and so lead to unnecessary incisions.

MR. CHARLES COPPINGER, F.R.C.S.I., writes as follows:

In last week's number of the BRITISH MEDICAL JOURNAL Mr. Howard Marsh made the following remarks in reference to Roentgen photography:

"In cases of injury to the long bones, and especially of injuries involving the articular ends of the bones, and when it is a question what the precise injury which has been sustained may be, the method will often be valuable in the highest degree."

I entirely concur in the above prediction of such a well-known authority on the subject, and have no doubt, from my own practical experience of the method in surgery during the last month, that we will soon be in a position to settle many vexed questions in surgical pathology and diagnosis, such as, for instance, the impaction or non-impaction in Colles's fracture of the lower end of the radius, the precise conditions which prevail in intractable dislocations of the first metacarpo-phalangeal joint, etc. As a step in that direction, the following case seems worthy of a brief record:

J. R., aged 12, was admitted to the Mater Misericordiæ Hospital on the morning of May 21st, with an injury to his right wrist, caused about an hour before by a fall from the horizontal bar at a gymnasium. The boy had fallen to the ground palm downward, and the existence of a fracture was at once apparent. The deformity, indeed, was great and unmistakable, the dorsal and palmar elevations producing the usual appearance of undulation at the wrist. There was, however, no appearance of rotation, the displacement of the carpus being directly backwards, so that the deformity resembled that caused by a dislocation of the wrist in that direction. The absence, moreover, of the curved outline of the radial border of the arm characteristic of Colles's fracture was noticed by my colleague, Mr. Hayes, and by myself.

A Roentgen photograph of the wrist was taken without delay but with some difficulty on account of the patient's restlessness; a rapid Paget plate and a focus tube, energised by means of an accumulator and a 6-inch Ruhmkorff coil, being made use of.

The negative, though not fully exposed, shows, when compared with a radiograph of the normal wrist, that the injury was really a displacement at the epiphysial line, and not the well-known fracture of Colles, or the far more rare dislocation of the wrist backwards. The facility with which the deformity was subsequently reduced by simple traction, and the absence of bony crepitus during its reduction, seemed to confirm the diagnosis.

I enclose a print from the untouched negative, and purpose taking another radiograph of the boy's wrist at any early date for comparison.

THE NEW METHOD IN HOSPITAL PRACTICE.

A Roentgen Laboratory has been established in the Glasgow Royal Infirmary. The electrical apparatus in the hospital is now very complete, having everything required for medical and surgical purposes, and an electric lantern microscope has been provided. Photographs with the Roentgen apparatus have already been taken in the hospital, and it will now form a part of the ordinary work of the electrical department.

THE TWENTY-FIFTH CONGRESS OF GERMAN SURGEONS.

[FROM OUR BERLIN CORRESPONDENT.]

JUBILEE MEETING.

THE Surgical Congress, which meets annually in Berlin, always an important medical event, was of special interest this year, for this was a jubilee meeting, the twenty-fifth since the Society of German Surgeons was founded by Bernhard von Langenbeck under the impression of the terrible lessons taught by the war of 1870-71. The club house which the Society has built for itself, and which bears Langenbeck's name, was *en fête*—brave with flags, and flowers, and wreaths—for the reception of the members and their guests. Members had come from all parts of Germany; not a university, not a hospital of note was unrepresented, and delegates were sent by many of the German medical societies. Delegates came, too, from other countries. From England came Mr. Reginald Harrison, Vice-President of the Royal College of Surgeons, and Mr. John Langton; from France, Professor Felix Guyon, President of the Congrès de Chirurgie, and Dr. Piqué; from Russia, Professor Sklifossowski and Dr. Ebermann; from Italy, Professor d'Antona and Professor Bottini. And here among the guests of honour was Sir Spencer Wells, observed of all observers, admired and fêted wherever he appears; and Professor Ollier, from Lyons, whose portrait has just been added to the collection of eminent surgeons in the Langenbeck House.

OPENING OF THE CONGRESS.

The first meeting (a so-called "Fest-sitzung") was opened by Bergmann, President of the Congress, who welcomed the guests of honour and deputations. He gave a short history of the Society, and announced that Professor Ernst Gurlt had been elected an honorary member. Gurlt, he said, was thus the eight honorary member of the Society. He named the other seven: Langenbeck, Ollier, Paget, Spencer Wells, Lister, Billroth, Thiersch, and said these were the men on whose shoulders stood modern surgery.

PROFESSOR ESMARCH ON ARTIFICIAL ANÆMIA.

After a few words from the Prussian Cultus-Minister, Dr. Bosse, who greeted the Congress, and thanked the Surgical Society in the name of the Government, Professor Esmarch (Kiel) read a paper on his invention of artificial anæmia in operations. In some introductory remarks on the wonderful advance of surgery in his own lifetime, he spoke of the enthusiasm with which Morton's discovery of ether narcosis was received by the medical world. This was just fifty years ago, and he (Esmarch) was at the time Langenbeck's assistant. Then, he said, a year later, came Simpson's great chloroform discovery. And then he named another Englishman, who, in the history of surgery, had immortalised himself—Lister. Speaking of his own invention, Esmarch said that as early as the fifties he was in the habit, when operating on an extremity, of binding it firmly in linen bandages first, so as to force out as much of the blood as possible. But it was not till 1873 that an operation, trifling in itself, pointed the way to his discovery. In that year a lady whose finger was very much swollen, asked him to remove her ring. He bound a strong piece of string tightly round and round the finger, from the apex down to the ring, drew the end of the string through the ring, and then unwound the string very quickly, when the ring slipped off easily. This gave him the idea of forcing out blood by means of caoutchouc bandages before operations.

After Esmarch, Professor Bruns (Tübingen) read a paper on the development of modern goître treatment; Professor Koenig (Berlin) followed with a paper on the development of the doctrine of local tuberculosis, and Professor Woelfler (Prague) brought the proceedings to a close with a paper on the history of the surgery of the stomach and intestines.

BANQUET IN THE KAISERHOF.

The first meeting was followed by a banquet in the Kaiserhof Hotel, at which Minister Bosse had the place of honour, on his right Sir Spencer Wells, on his left the President of the Congress (von Bergmann). There were several after-dinner speeches. Von Bergmann proposed "The Health of German Emperor;" Minister Bosse drank to the German Surgical Society; Professor Gussenbauer (Vienna) to the honorary members. Sir Spencer Wells responded in the name of the latter, and Professor Ollier drank a health to von Bergmann; Professor Gurlt, Professor Guyon, Harrison, Sklifossowski, and d'Antona also made speeches.

COMMUNICATIONS.

The following days were filled up by meetings, at which so many papers were read that it is impossible even to enumerate them all in a short letter. Professor Sonnenburg, of the Moabit Hospital, spoke on operations on the processus vermiformis; Professor Angerer (Vienna) on modern nerve operations and their results; Dr. Petersen (Heidelberg) on the treatment of malignant tumours with bacterial poisons; Professor Olshausen (Berlin) on the principles of vaginal extirpation of uterine carcinoma. There were discussions on the diagnostic value of Roentgen rays, and on the treatment of congenital dislocations of the hip.

SURGICAL TABLEAUX VIVANTS.

The evenings were as usual devoted to amusement and festive gatherings. On the evening of the 28th a brilliant *fête* given in Kroll's Theatre was honoured by the presence of the Emperor and Empress. A series of *tableaux vivants* represented the rise and development of surgery from the earliest (Druidical) times to the present day, each *tableau* being introduced by appropriate verses. All the performers belonged to the medical profession—even the ladies, as they were the daughters or sisters of members of the Congress.

The Empress gave an audience to the President and Committee and the guests of honour of the Congress.

AN INTERNATIONAL SURGICAL CONGRESS.

At the last meeting the question of the proposed international surgical congresses was discussed, and it was announced that the *pourparlers* of the Committee with the committees of other surgical societies had resulted in the choice of London for the first International Surgical Congress in 1900. The official languages are to be English, German, and French.

THE PRESIDENT OF THE NEXT CONGRESS.

Professor Bruns (Tübingen) was then elected President of the next year's German Surgical Congress.

DONATIONS AND BEQUESTS.—The late Mrs. Elizabeth Anne Tanton has by her will bequeathed considerable sums to various charities, among them being the British Medical Benevolent Fund and University College Hospital, each of which take a legacy or share of about £2,040, while Dr. Astley's Small-Pox Hospital at Dover benefits to the extent of over £1,300.

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